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THE ELEMENTS

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GENERAL METHOD

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THE ELEMENTS

OF

GENERAL METHOD

BASED ON THE PRINCIPLES OF HERBART

BY

CHARLES A. McMURRY, Ph.D.

NEW EDITION, REVISED AND ENLARGED

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PREFACE

In this revised edition of the General Method all the chapters have been considerably modified and enlarged. Especially has the treatment of Interest and Correlation been much extended.

The "Method of the Recitation" and the "School Management," two volumes which follow this from the same publishers, will complete the group of books treating of the general principles of method.

Closely following these, the books of Special Method in Reading, Geography, Natural Science, and other studies by the same author apply these principles more definitely to the selection of materials and method of treatment in the various studies.

The Course of Study for the eight grades of the common school is worked out on the basis of the foregoing books of General and Special Method and will complete the whole series.

CHARLES A. McMURRY.

De Kalb, Illinois,
August 14, 1902.

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THE ELEMENTS OF GENERAL METHOD

CHAPTER I

THE CHIEF AIM OF EDUCATION

WHAT is the central purpose of education? If we include under the term "education" all the things commonly assigned to it, its many phases as represented by the great variety of teachers and pupils, the many branches of knowledge, and the various and even conflicting theories and methods in bringing up children, it is difficult to find a definition sufficiently broad and definite to compass its meaning. In fact, we shall not attempt in the beginning to make a definition. We are in search not so much of a comprehensive definition as of a central truth, a key to the situation, an aim that will simplify and brighten all the work of teachers. Keeping in view the end from the beginning, we need a central organizing principle which shall dictate for teacher and pupil the highway over which they shall travel together.

We will assume, at least, that education means the whole bringing up of a child from infancy to maturity, not simply his school training. The reason for this assumption is that home, school, companions, environment, and natural endowment, working through a series of years, produce a character which should be a unit as the resultant of these different influences and growths. Again, we are compelled to assume that this aim, whatever it is, is the same for all.

Now, what will the average man, picked up at random, say to our question, What is the chief end in the education of your son? A farmer wishes his boy to read, write, and cipher, so as to meet successfully the needs of a farmer's life. The merchant desires that his boy get a wider reach of knowledge and experience, so as to succeed in a livelier sort of business competition. A university professor would lay out a liberal course of training for his son, so as to prepare him for intellectual pursuits among scholars and people of culture. This utilitarian view, which points to success in life in the ordinary sense, is the prevailing one. We could probably sum up the wishes of a great majority of the common people by saying, "They desire to give their children, through education, a better chance in life than they themselves have had." Yet even these people, if pressed to give reasons, would admit that the purely utilitarian view is a low one, and that there is something better for every boy and girl than the mere ability to make a successful living.

Turn for a moment to the great systems of education which have held their own for centuries, and examine their aims. The Jesuits and the Humanists claim to be liberal, culture-giving, and preparatory to great things; yet we need but to quote from the histories of education to show their narrowness and incompleteness. The training of the Jesuits was linguistic and rhetorical, and almost entirely apart from our present notion of human development. The Humanists, or Classicists, who for so many centuries have constituted the educational élite, belonged to the past with its glories rather than to the time in which they really lived. Though standing in a modern age, they were almost blind to the great problems and opportunities it offered. They stood in bold contrast to the growth of the modern spirit in history, literature, and natural science. But, in spite of their predominating influence over education for centuries, there has never been the shadow of a chance for making the classics of antiquity the basis of common popular education. The modern school of Natural Scientists may be as one-sided as the Humanists in supposing that human nature is narrow enough to be compressed within the bounds of natural science studies, however broad their field may be.

But the systems of education in vogue have always lagged behind the pronounced views of educational reformers. Two hundred fifty years ago Comenius projected a plan of education for every boy and girl of the common people. His aim was to teach all men all things, from the highest truths of religion to the commonest things of daily experience. Being a man of simple and profound religious faith, religion and morality were at the foundation of his system. But even the principles of intellectual training so clearly advocated by Comenius have not yet found a ready hearing among teachers, to say nothing of his great moral religious purpose. Among later writers, Locke, Rousseau, and Pestalozzi have set up ideals of education that have had much influence. But Locke's "gentleman" can never be the ideal of all, because it is intrinsically aristocratic, and education has become with us broadly democratic. After all, Locke's "gentleman," with his moral basis for character, is a noble ideal and should powerfully impress teachers. The perfect human animal that Rousseau dreamed of in the Émile, is best illustrated in the noble savage, but we are not in danger in America of adopting this ideal. In spite of his merits the noblest savage falls short in several ways. Yet it is important in education to perfect the physical powers and the animal development in every child. Pestalozzi touched the hearts of even the weakest and morally frailest children, and tried to make improved physical conditions and intellectual culture contribute to heart culture, or rather to combine the two in strong moral character. He came close upon the highest aim in education and was able to illustrate his doctrine in practice. The educational reformers have gone far ahead of the schoolmasters in setting up a high aim in education.

Let us examine a few well-known definitions of education by great thinkers, and try to discover a central idea.

Plato: "The purpose of education is to give to the body and to the soul all the beauty and all the perfection of which they are capable."

John Stuart Mill: "Education includes whatever we do for ourselves and whatever is done for us by others for the express purpose of bringing us nearer to the perfection of our nature."

Herbert Spencer: "Education is the preparation for complete living."

Stein: "Education is the harmonious and equable evolution of the human faculties by a method based upon the nature of the mind for developing all the faculties of the soul, for stirring up and nourishing all the principles of life, while shunning all one-sided culture and taking account of the sentiments upon which the strength and worth of men depend."

Compayre: "Education is the sum of the reflective efforts by which we aid nature in the development of the physical, intellectual, and moral faculties of man in view of his perfection, his happiness, and his social destination."

These attempts to bring the task of education into a comprehensive, scientific formula are interesting and yet disappointing. They agree in giving great breadth to education. But in the attempt to be comprehensive, to omit nothing, they fail to specify that wherein the true worth of a man consists; they fail to bring out into relief the highest aim as an organizing idea in the complicated work of education and its relation to secondary aims.

We desire therefore to approach nearer to this problem: What is the highest aim of education?

We will do so by inquiry into the aims and tendencies of our public schools. To an outward observer the schools of to-day confine their attention almost exclusively to the acquisition of certain forms of knowledge and to intellectual training, to the mental discipline and power that come from a varied and vigorous exercise of the faculties. The great majority of good schoolmasters stand squarely upon this platform, knowledge and mental discipline. But they are none the less deeply conscious that this is not the highest aim of education. We scarcely need to be told that a person may be fully equipped with the best that this style of education can give, and still remain a criminal. A good and wise parent will inevitably seek for a better result in his child than mere knowledge, intellectual ability, and power. All good schoolmasters know that behind school studies and cares is the still greater task of developing manly and womanly character. Perhaps, however, this is too high and sacred a thing to formulate. Perhaps in the attempt to reduce it to a scientific form we should lose its spirit. Admitting that strong moral character is the noblest result of right training, is it not still incidental to the regular school work? Perhaps it lies in the teacher and his manner of teaching subjects, and not in the subject-matter itself nor in any course of study.

This is exactly the point at which we wish to apply the lever and to lift into prominence the moral, character-building aim as the central one in education. This aim should be like a loadstone, attracting and subordinating all other purposes to itself. It should dominate in the choice, arrangement, and method of studies.

It is difficult at the present time to set up the moral aim as a supreme one in education, and to grasp clearly the instrumentalities by which it can be realized.

When the churches first founded the common schools in this country and in Europe, the Bible was made the basis of religious and moral training, and definite means were thus supplied for reaching the result. This is still true of many European schools. But now that our schools have been completely secularized, and the Bible banished as a text-book, we have in our school course no material of pronounced ethical content whose avowed purpose is moral culture. So far as direct moral training through instruction is concerned, we have no plan for it. Knowledge and discipline are the well-defined purposes of our schools. The personal influence and moral force of the teacher must bear whatever burden of moral culture the school is held responsible for.

There is also an instinctive feeling that direct moral teaching is apt to be formal and theoretic, unreal if not hypocritical, that morality belongs rather to conduct and to the discipline of the school than to instruction. Again, in those studies like history, reading, and literature, which possess marked moral quality, the instruction has been directed chiefly to other purposes, and therefore the moral influence of these studies has not been much utilized. Moreover, the relation of the moral aim to the other leading aims of education, such as intellectual discipline, physical training, acquired knowledge, music, art, and æsthetics, and especially to the conduct and active employments of children, has not been completely worked out. Some have the feeling that morality is not a broad enough concept to cover the whole scheme of education. To bring all the aims into subordination to this one aim would limit its freedom and scope. We may state briefly, therefore, some of the reasons why the moral aim should be put forward as the controlling one in education.

First: The attainment of virtue, that is, the establishment of moral habits, gives us the best quality and achievement in individual character. It is acknowledged that the perfection of the individual is a chief essential to the aim of education. No matter how much we emphasize scientific knowledge and mental discipline, all admit that the attainment of moral excellence is still superior to these. As Kant says, "There is but one good thing in the world, and that is a good will." The perfection of will, however, is found only in its subjection to moral requirements in the individual. It will be generally admitted that all physical, intellectual, and æsthetic culture should culminate in this individual moral excellence.

Second: The second chief essential in the education of children is that they shall be trained for society and for citizenship. They shall be adapted to the social and industrial life of the present. This demand is heard with much emphasis and from the highest quarters. It seems at the present time that the demand for the perfection of the individual is yielding, to a considerable extent, to the requirement for socializing or subordinating the individual to the needs of society. It is in the social order, however, that the moral virtues come chiefly into play. The highest statement of the social law is found in the golden rule, and it is the application of this everywhere that is most needed in social intercourse and in human industry. To equip a child properly for social and industrial life is to put him in possession, through education, of these moral or social virtues and sympathies. This can only be done by giving him an insight into human relations and sympathy for people in all the various conditions of society. This whole point of view, therefore, is moral in the highest degree.

Whether we look at education from the standpoint of the individual or of society as a whole, moral culture is the preëminent need in both.

Third: Moral ideas and moral education generally are subject to the same laws of growth and development as other kinds of knowledge and culture. Moral judgments, feelings, and decisions, vague and rudimentary at first in children, gradually develop through experience and culture to clearness and strength. It requires a clear advance in intelligence to perceive moral ideas, and likewise to move forward from particular examples to general moral concepts. In this respect moral enlightenment does not differ from other kinds of growth in intelligence. The sympathetic and social feelings and the sense of moral obligation also ripen gradually with the growth in intelligence. If left to themselves or to chance, these moral ideas, sympathies, and habits of judgment are easily perverted and the whole moral character wrecked. Indeed they require the most careful cultivation and direction by wise teachers and parents. No teacher or thinker would have the hardihood to deny these statements, and yet our schools have no definite plan for the cultivation of moral ideas and feelings.

Fourth: The great central studies of the school course, such as reading, literature, and history, are full to overflowing with material of the best quality upon which the moral judgments and sympathies may be directly cultivated. These forms of biography and history and literature which are coming to be most used in the schools, are especially fruitful in those personal, concrete forms of life which reveal simple moral ideas in a striking form. The chief fact to be observed is, that these studies, already used in the school, are preëminent for their moral worth, but have not been employed chiefly to bring out this form of culture and character growth.

Fifth: The school, however, is not limited in its sphere of opportunities to the theoretical treatment of morals, to the mere observation of moral ideas in stories, etc. It has abundant opportunity to lead over from moral judgments and sympathetic feelings to conduct. Every one concedes that it is as much the business of a teacher to look after the conduct of children as to supervise their acquisition of ideas and knowledge. The school itself is a social organization, and children cannot live in its close relationships without practising the social virtues, or else violating them. Every day moral habits are being formed in the school, and the direct experience of these relations by the children in home and school must be the basis also of any interpretation of moral situations in stories, history, etc. But beyond this there is an increasing and emphatic demand that our schools shall be converted more and more into social institutions, that by means of the extension of social activities in cooking, weaving, industrial occupations, and coöperation, this social spirit shall be given freer scope. This will fit children better to understand, appreciate, and sympathize with the more intimate and complex social and industrial conditions into which the people are rapidly growing. We may even go so far as to say that the strongest and most intelligent demand made upon the school in late years is for greater socialization of its activities, and, in the last analysis, what does this mean, other than greater intellectual and moral insight, greater sympathy with our fellow-men, better social conduct, morality? The school therefore is not limited to the theory of morals.

Sixth: The pedagogical applications of ethics and psychology have been developed far enough to furnish the teachers with a good scheme of moral training, with a set of pedagogical principles with which the teacher can intelligently go to work to cultivate steadily and rationally the moral insight and feeling of children.

These six considerations bearing upon the value of the moral aim in education seem to justify us as teachers in pushing it to the front and in concentrating our energies upon its accomplishment.

To summarize: 1. The attainment of moral excellence in conduct is the perfection of the individual.

2. Ability to fulfil the moral law in the social relations is the chief demand that society makes upon the individual.

3. Moral enlightenment and growth toward moral conduct are subject to the same laws as other forms of mental culture.

4. Several of the most important studies furnish peculiarly strong and appropriate material for moral instruction.

5. The school is not narrowed to ethical theory. As a social organization, through its activities and discipline, it furnishes also the transition from theory to practice or conduct.

6. A fairly complete and practical scheme of moral education on the basis of ethics and pedagogy is within the reach of teachers.

Let us examine further the convictions upon which the moral aim rests. Every wise and benevolent parent knows that the first and last question to ask and to answer regarding a child is, "What are his moral quality and strength?" Now, who is better able to judge of the true aim than thoughtful and solicitous parents? In the second place, it is inconceivable that a conscientious teacher should close his eyes to all except the intellectual training of his pupils. It is as natural for him to touch and awaken the moral qualities as it is for birds to sing. Again, the state is more concerned to see the growth of just and virtuous citizens than in seeing the prosperity of scholars, inventors, and merchants. It is also concerned with the success of the latter, but chiefly when their knowledge, skill, and wealth are regulated by their virtues. Our country may have vast resources and great opportunities, but everything in the end depends upon the moral quality of its men and women. Undermine and corrupt this, and we all know that there is nothing to hope for. The uncorrupted stock of true patriots in our land is firmly rooted in this conviction, which is worth more to the country than cornfields and iron mines. The perpetual enticement and blandishment of worldly success so universal in our time cannot move us if we found our theory and practice upon the central doctrine of moral education. Education, therefore, in its popular untrammelled, moral sense, is the greatest concern of the state.

In projecting a general plan of popular education we are beholden to the prejudices of no man nor class of men. Not even the traditional prejudices of the great body of teachers should stand in the way of setting up the noblest ideal of education. Educational thinkers are in duty bound to free themselves from utilitarian notions and narrowness, and to adopt the best platform that children by natural birthright can stand upon. They are called upon to find the best and to apply it to as many as possible. Let it be remembered that each child has a complete growth before him. His own possibilities, and not the attainments of his parents and elders, are the things to consider.

Shall we seek to avoid responsibility for the moral aim by throwing it upon the family and the church? But the more we probe into educational problems, the more we shall find the essential unity of all educational forces. The citadel of a child's life is his moral character, whether the home, the school, or the church build and strengthen its walls. If asked to define the relation of the school to the home, we shall quickly see that they are one in spirit and leading purpose, that instead of being separated they should be brought closer together.

In conclusion, therefore, shall we make moral character the clear and conscious aim of school education, and then subordinate school studies and discipline, mental training and conduct, to this aim? It will be a great stimulus to thousands of teachers to discover that this is the real purpose of school work, and that there are abundant means not yet used of realizing it. Having once firmly grasped this idea, they will find that there is no other having half its potency. It will put a substantial foundation under educational labors both theoretical and practical, which will make them the noblest of enterprises. Can we expect the public school to drop into such a purely subordinate function as that of intellectual training, to limit its influence to an almost mechanical action, the sharpening of the mental tools? Stated in this form, it becomes an absurdity.

Is it reasonable to suppose that the rank and file of our teachers will realize the importance of this aim in teaching, so long as it has no recognition in our public system of instruction? The moral element is largely present among educators as an instinct, but it ought to be evolved into a clear purpose with definite means of accomplishment. It is an open secret, in fact, that while our public instruction is ostensibly secular, having nothing to do directly with religion or morals, there is nothing about which good teachers are more thoughtful and anxious than about the means of moral influence. Occasionally some one from the outside attacks our public schools as without morals and godless, but there is no lack of stanch defenders on moral grounds. Theoretically and even practically, to a considerable extent, we are all agreed upon the supreme value of moral education. But there is a striking inconsistency in our whole position on the school problem. While the supreme value of the moral aim will be generally admitted, it has no open recognition in our school course, either as a principal or as a subordinate aim of instruction. Moral education is not germane to the avowed purposes of the public school. If it gets in at all, it is by the back door. It is incidental, not primary. The importance of making the leading aim of education clear and conscious to teachers, is great. If their conviction on this point is not clear, they will certainly not concentrate their attention and efforts upon its realization. Again, in a businesslike education, where there are so many important and necessary results to be reached, it is very easy and common to put forward a subordinate aim, and to lift it into undue prominence, even allowing it to swallow up all the energies of teacher and pupils. Owing to this diversity of opinion among teachers as to the results to be reached, our public schools exhibit a chaos of conflicting theory and practice, and a numberless brood of hobby-riders.

How to establish the moral aim in the centre of the school course, how to subordinate and realize the other educational aims while keeping this chiefly in view, how to make instruction and school discipline contribute unitedly to the formation of vigorous moral character, and how to unite home, school, and other life experiences of a child in perfecting the one great aim of education — these are some of the problems whose solution will be sought in the following chapters.

It will be especially our purpose to show how school instruction can be brought into the direct service of character-building. This is the point upon which most teachers are sceptical. Not much effort has been made until recently to put the best moral materials into the school course. In one whole set of school studies, and that the most important (reading, literature, and history), the chapter on relative values will show that there is opportunity through all the grades for a vivid and direct cultivation of moral ideas and convictions. The second great series of studies, the natural sciences, comes in to support the moral aims, while the personal example and influence of the teacher, and the common experiences and incidents of school life and conduct, give abundant occasion to apply and enforce moral ideas.

That the other justifiable aims of education, such as physical training, mental discipline, orderly habits, gentlemanly conduct, practical utility of knowledge, liberal culture, and the free development of individuality, will not be weakened by placing the moral aim in the forefront of educational motives, we are convinced.

Herbart has stated the moral aim of education at the beginning of his "Outlines of Educational Doctrine," Lange and De Garmo, pp. 7 and 8, as follows: —

"The term 'virtue' expresses the whole purpose of education. Virtue is the idea of inner freedom which has developed into an abiding actuality in an individual. Whence, as inner freedom is a relation between insight and volition, a double task is at once set before the teacher. It becomes his business to make actual each of these two factors separately, in order that a later permanent relationship may result.

"But even here, at the outset, we need to bear in mind the identity of morality with the effort put forth to realize the permanent actuality of the harmony between insight and volition. To induce the pupil to make this effort is a difficult achievement; at all events, it becomes possible only when the twofold training mentioned above is well under way. It is easy enough, by the study of the example of others, to cultivate theoretical acumen. The moral application to the pupil himself, however, can be made, with hope of success, only in so far as his inclinations and habits have taken a direction in keeping with his insight."

CHAPTER II

RELATIVE VALUE OF STUDIES

BEING convinced that the controlling aim of education should be moral, and that all the activities and studies of the school should contribute either directly or indirectly to this aim, we shall now inquire into the relative value of different studies and their fitness to reach and satisfy this aim. As measured upon this cardinal purpose, what is the intrinsic value of each and all the school studies? The branches of knowledge furnish the materials upon which the self-activity of the child may develop itself. The complex web of his knowledge, interests, and volitional activities can be woven in the schoolroom into a closer and firmer texture. Before entering upon such a long and uphill task as education, with its many complexities and weighty results, it is prudent to estimate not only the end in view but the best means for reaching it. Many and varied means have been offered, some trivial, others valuable. A careful measurement with some reliable standard of the materials furnished by the common school is our first task. To what extent does history contribute to our purpose? What importance have geography and arithmetic? How do reading, natural science, and constructive activity aid a child to grow into the full stature of a man or woman?

These questions are not new, but the answer to them has been long delayed. Since the time of Comenius, to say the least, they have seriously disturbed educators. But few have had the courage, industry, and breadth of mind of a Comenius, to sound the educational waters and to lay out a profitable chart. In spite of Comenius's labors, however, and of those of other educational reformers, be they never so energetic, practical progress toward a final answer, as registered in school courses, has been extremely slow.

Herbert Spencer says in "Education," p. 26: —

"If there needs any further evidence of the rude, undeveloped character of our education, we have it in the fact that the comparative worths of the different kinds of knowledge have been as yet scarcely even discussed, much less discussed in a methodic way with definite results. Not only is it that no standard of relative values has yet been agreed upon, but the existence of any such standard has not been conceived in any clear manner. And not only is it that the existence of such a standard has not been clearly conceived, but the need of it seems to have been scarcely even felt. Men read books upon this topic and attend lectures upon that, decide that their children shall be instructed in these branches and not in those; and all under the guidance of mere custom, or liking, or prejudice, without ever considering the enormous importance of determining in some rational way what things are really most worth learning. . . . Men dress their children's minds as they do their bodies, in the prevailing fashion."

Spencer sees clearly the importance of this problem and gives it a vigorous discussion in his first chapter, "What knowledge is of most worth?" But the question is a broad and fundamental one, and in his preference for the natural sciences he seems to us not to have maintained a just balance of educational forces in preparing a child for "complete living." His theory needs also to be worked out into greater detail and applied to school conditions before it can be of much value to teachers. Great changes and reforms indeed have been started, especially within the last fifty years, but they have been undertaken under the pressure of general popular demands and have resulted in compromises between traditional forces and urgent popular needs. An adequate philosophical inquiry into the relative merit of studies and into their adaptability to nurture mental, moral, and physical qualities, has not been made. In the report of the Committee of Fifteen and in the discussions which have followed it, this question has assumed important proportions, and has fully aroused educational workers.

The Germans have gone deeply into this problem. Quite a number of able thinkers among them have given their best years to the study of relative educational values and to a working out of its results. Herbart, Ziller, Stoy, and Rein were deeply interested in philosophy and psychology as life-long teachers of these subjects at the university, but in their practice schools in the same place they also stood daily face to face with the primary difficulties of ordinary teaching. At the outset, and before laying out a course of study, they were compelled to meet and settle the aim of education and the problem of relative values. Having answered these questions to their own satisfaction, they proceeded to work out in detail a common school course. The Herbart school of teachers has presumed to call its interpretation of educational ideas "scientific pedagogy," a somewhat pretentious name in view of the fact that many leading educators in Germany, England, and elsewhere deny the existence of such a science. But if not a science, it is at least a serious attempt at one. The exposition of principles that follows is largely derived from them.

With us the present time is favorable to a rational inquiry into relative educational values and to a thoroughgoing application of the results to school courses and methods.

In the first place the old classical monopoly is finally and completely broken, at least so far as the common school is concerned. It ruled education for several centuries, but now even its methods of discipline are losing their antique hold. The natural sciences, modern history, and literature have assumed an equal place with the old classical studies in college courses. Freed from old traditions and prejudice, our common school is now grounded in the vernacular, in the national history and literature, and in home geography and natural science. Its roots go deep into native soil. Secondly, the door of the common school has been thrown open to the new studies, and they have entered in a troop. History, drawing, natural science, manual training, modern literature, and physical culture have been added to the old reading, writing, and arithmetic. The common school was never so untrammelled. It is free to absorb into its course the select materials of the best studies. Teachers really enjoy more freedom in selecting and arranging subjects and in introducing new things than they know how to make use of. There is no one in high authority to check the reform spirit, and even local boards are often among the advocates of change. In the third place, by multiplying studies, the common school course has grown more complex and heterogeneous. The old reading, writing, arithmetic, and grammar could not be shelved for the sake of the new studies, and the same amount of time must be divided now among many branches. It is not to be wondered at if all the studies are treated in a shallow and fragmentary way. Some of the studies, especially, are not well taught. There is less of unity in education now than there was before the classical studies and "the three R's" lost their supremacy. Our common school course has become a batch of miscellanies. We are in danger of overloading pupils, as well as of making a superficial hodge-podge of all branches. There is imperative need for sifting the studies according to their value, as well as for bringing them into right connection and dependence upon one another. The correlation of studies, which is not only discussed but seriously undertaken in many quarters, is charged with the solution of this part of the problem. The superficial and miscellaneous character of our present school course will give place, by means of proper adjustment and interconnection of studies, to a deeper and stronger unity than we have yet found. Fourthly, there is a large body of thoughtful and inquiring teachers and principals who are working at a revision of the school course. They seek something tangible, a working plan, which will help them in their present perplexities and show them a wise use of drawing, music, art, manual training, natural science, and literature, in harmony with the other studies. Finally, since we are in the midst of such a breaking-up period, we need to take our bearings. In order to avoid mistakes and excesses, there is a call for deep, impartial, and many-sided thinking on educational problems. Supposing that we know what the controlling aim of education is, we are next led to inquire about and to determine, as well as we can, the relative value of studies as tributary to this aim.

In attempting this comprehensive survey of studies we must keep in mind also the development of the active powers in children, both physical and mental, and the demands of the social and economic world into which their growing powers will fit. The unresting energy of educational thought and discussion has lifted into prominence a number of big problems in connection with the school course, such as the value and functions of natural science; the ministry of the fine arts, including literature, in education; the value of the expressive and constructive energies of children in drawing, moulding, games and physical exercises, manual training and industrial work; the subordination of the instrumental studies like reading, writing, and language to those having a richer knowledge content, like science and literature, and others. The mention of these large and as yet unsettled questions and the number of new studies which have not yet attained a sure footing in the school course, suggest the breadth of the field of inquiry upon which we are launched.

Instead of discussing the many branches of study one after another, it may be well to make a broad division of them into three classes and observe the marked features and value of each. First, history, including the subject-matter of biography, history, story, and other parts of literature. Second, the natural sciences. Third, the formal studies, — grammar, writing, much of arithmetic, and the symbols used in reading.

The first two open up the great fields of real knowledge and experience, the world of man and of external nature, the two great reservoirs of interesting facts. We will first examine these two fields and consider their value as constituent parts of the school course.

History, in our present sense, includes what we usually understand by it, as American history, modern and ancient history, also biography, tradition, fiction as expressing human life and the novel or romance, and historical and literary masterpieces of all sorts, as the drama, historical novels, and the epic poem, so far as they delineate man's experience and character. In a still broader sense, history includes language as the expression of men's thoughts and feelings. But this is the formal side of history with which we are not at present concerned. History deals with men's motives and actions as individuals or in society, with their dispositions, habits, and institutions, and with the monuments and literature they have left.

From the standpoint of the aim which we have set up, our first inquiry is in regard to the moral significance of the broad field of history.

The relations of persons to each other in society give rise to morals. How? The act of a person — as when a fireman rescues a child from a burning building — shows a disposition in the actor. We praise or condemn this disposition as the deed is good or bad. But each moral judgment, given with honesty and feeling, leaves the child stronger. To appreciate and judge fairly the life and acts of a woman like Mary Lyon, or of a man such as Samuel Armstrong, is to awaken something of their spirit and moral temper in ourselves. Whether in the life of David or of Shylock, or of the people whom they typify, the study of men is primarily a study of morals, of conduct. It is in the personal hardships, struggles, and mutual contact of men that motives and moral impulses are observed and weighed. In such men as John Bunyan, William the Silent, and John Quincy Adams, we are much interested to know what qualities of mind and heart they possessed, and especially what human sympathies and antipathies they felt. Livingstone embodied in his African life certain Christian virtues which we love and honor the more because they were so severely and successfully tested. Although the history of men and of society has many uses, its best influence is in illustrating and inculcating moral ideas. It is teaching morals by example. Even living companions often exert less influence upon children than the characters impressed upon their minds from reading. The deliberate plan of teachers and parents might make this influence more salutary and effective.

It will strike most teachers as a surprise to say that the chief use of history study is to form moral notions in children. Their experience with this branch of school work has been quite different. They have not so regarded nor used history. It has been generally looked upon as a body of useful information that intelligent persons must possess. Our history texts also have been constructed for another purpose, namely, to summarize and present important facts in as brief space as possible, not to reveal personal actions and character as a formative moral influence in the education of the young. Even as sources of valuable information, Spencer shows that our histories have been extremely deficient; but for moral purposes they are almost worthless.

Now moral dispositions are a better fruitage and test of worth in men than any intellectual acquirements. History is already a recognized study of admitted value in the schools. It is a shame to strip it of that content and of that influence which are its chief merit. To study the conduct of persons as illustrating right actions is, in quality, the highest form of instruction. Other very important things are also involved in a right study of history. There are economic, political, and social institutions evolved out of previous history, there are present intricate problems to be approached and understood. But all these questions rest to a large extent upon moral principles. While these political, social, and economic interests are beyond the present reach of children, biography, individual life and action in their simple forms, are plain to their understanding. They not only make moral conduct real and impressive, but they gradually lead up to the appreciation of history in its social and institutional forms.

Some of the best historical materials (from biography, tradition, and fiction) should be absorbed by children in each grade as an essential part of the substratum of moral ideas. This implies more than a collection of historical stories in a supplementary reader for intermediate grades. It means that history, in the broad sense, is to be an important study in every grade, and that it shall become a centre and reservoir from which history proper, literature, reading books, and language lessons draw their supplies. These biographies, stories, poems, and historical episodes must be the best which our history and classic literature can furnish, and whatever is of like virtue in the life of other kindred peoples, of England, Germany, Greece, etc.

The testimony of many men is that the study of Plutarch's lives produced a profound impression upon them, influencing their standards and ideals of character. The Bible stories of patriarchs, judges, prophets, and kings, revealing personal character in illustrative deeds, have made deep marks upon the character of boys and girls for many hundreds of years and in many nations. The moulding influence of the "Iliad" and the "Odyssey," the Bible of the Greeks, upon that wonderful people was almost creative. When we think of such books as "Pilgrim's Progress," "The Autobiography of Franklin," "Robinson Crusoe," "Goethe's Autobiography," Macaulay's "Essays on Johnson and Milton," Scott's "Tales of a Grandfather," and Hawthorne's "Biographical Sketches," we are surprised at the wide-reaching influence of stories of personal life and action. In the history of the church the most commanding influences have gone out from the personal history of Paul, Stephen, Peter, and Barnabas, to say nothing of Christ himself as shown in the Gospels. The vital force in church history centres itself largely in such men as Augustine, Loyola, Luther, Coligny, Wesley, Calvin, Knox, and what has been known of their personal lives. In political history the same can be said of Winthrop, Hamilton, Washington, Jackson, Clay, and others. The power of biographical story reveals itself in equal force in England, Germany, France, America, and in the ancient nations.

How the personality of Socrates prints itself with distinct impression upon every one who reads Xenophon! The historical novels of Scott, Kingsley, and Ebers illustrate the same penetrating influence of personal narrative. These few examples are perhaps sufficient to suggest the value of such historical material for moral educative purposes. These cover only a part of the field. Dramas, poems, novels, and history proper are equally potent for moral culture.

If history in this sense can be made a strong auxiliary to moral education in common schools, the whole body of earnest teachers will be gratified. For there is no theme among them of such perennial interest and depth of meaning as moral culture in schools. It is useless to talk of confining our teachers to the intellectual exercises outlined in text-books. They are conscious of dealing with children of moral susceptibility. In our meetings, discussions on the means of moral influence are more frequent and earnest than on any other topic; and in their daily work hundreds of our teachers are aiming at moral character in children more than at anything else. As they free themselves from mechanical requirements and begin to recognize their true function, they discover the transcendent importance of moral education, that it underlies and gives meaning to all the other work of the teacher.

But teachers heretofore have taken a narrow view of the moral influences at their disposal. Their ever recurring emphatic refrain has been "the example of the teacher," and, to tell the truth, there is no better means of instilling moral ideas than the presence and inspiration of a high-principled teacher. We know, however, that teachers need moral stimulus and encouragement as much as anybody. It will not do to suppose that they have reached the pinnacle of moral excellence and can stand as all-sufficient exemplars to children. The teacher himself must have food as well as the children. He must partake of the loaf he distributes to them. The clergyman also should be an example of Christian virtue, but he preaches the gospel as illustrated in the life of Christ, of St. Paul, and of others. In pressing home moral and religious truths his appeal is to great sources of inspiration which lie outside of himself. Why should the teacher rely upon his own unaided example more than the preacher? No teacher can feel that he embodies in himself, except in an imperfect way, the strong moral ideas that have made the history of good men worth reading. No matter what resources he may have in his own character, the teacher needs to employ moral forces that lie outside of himself, ideals toward which he struggles and toward which he inspires and leads others. The very fact that he appreciates and admires a man like Longfellow or Peter Cooper will stir the children with like feelings. In this sense it is a mistake to centre all attention upon the conduct of the teacher. He is but a guide, or, like Goldsmith's preacher, he allures to brighter worlds and leads the way. It is better for pupil and teacher to enter into the companionship of common aims and ideals. For them to study together and admire the conduct of Roger Williams is to bring them into closer sympathy, and what do teachers need more than to get into personal sympathy with their children? Let them climb the hill together, and enjoy the views together, and grow so intimate in their aims and sympathies that after-life cannot break the bond. When the inspirations and aims thus gained have gradually changed into tendencies and habits, the child is morally full-fledged. It is high ground upon which to place a youth, or aid in placing him, but it is clearly in view.

It is only gradually that moral ideas gain an ascendency, first over the thoughts and feelings of a child, and, later still, over his conduct. Many good impressions at first seem to bear no fruit in action. But examples and experience reiterate the truth till it finds a firm lodgement and begins to act as a check upon natural impulses. Many a child reads the stories in the *Youth's Companion* with absorbing interest but in the home circle fails noticeably to imitate the conduct he admires. But moral ideas must grow a little before they can yield fruit. The seed of example must drop into the soil of the mind under favorable conditions; it must germinate and send up its shoots to some height before its presence and nature can be clearly seen. The application of moral ideas to conduct is very important, even in childhood, but patience and care are necessary in most cases. There must be timely sowing of the seed and judicious cultivation, if good fruits are to be gathered later on. There is indeed much anxiety and painful uncertainty on the part of those who charge themselves with the moral training of children. Labor and birth pains are antecedent to the delivery of a moral being. Then, again, a child must develop according to what is in him, according to his nature and peculiar disposition. The processes of growth are within him, and the best you can do is to give them scope. He is free, and you are bound to minister to his best freedom. The common school age is the formative period. At six a child is morally immature; at fifteen perhaps the die has been stamped. This youthful wilderness must be crossed. We can't turn back. There is no other way of reaching the promised land. But there are rebellions and haltings and disorderly scenes.

This is a tortuous road. Isn't there a quicker and easier way? The most speedily constructed road across this region is a short treatise on morals for teacher and pupil. In this way it is possible to have all the virtues and faults tabulated, labelled, and transferred in brief space to the minds of the children (if the discipline is rigorous enough). Swallow a catechism, reduced to a verbal memory product. Pack away the essence of morals in a few general laws and rules, and have the children learn them. Some day they may understand. What astounding faith in memory-cram and dry forms! We can pave such a road through the fields of moral science, but when a child has travelled it, is he a whit better?

No such paved road is good for anything. It isn't even comfortable. It has been tried dozens of times in much less important fields of knowledge than morals. Moral ideas spring up out of experience with persons either in real life or in the books we read. Examples of moral action drawn from life are the only thing that can give meaning to moral precepts. If we see a harsh man beating his horse, we get an ineffaceable impression of harshness. By reading the story of the Black Beauty we acquire a lively sympathy for animals. Then the maxim "A merciful man is merciful to his beast" will be a good summary of the impressions received. Moral ideas always have a concrete basis or origin. Some companion with whose feelings and actions you are in close personal contact, or some character from history or fiction by whose personality you have been strongly attracted, gives you your keenest impressions of moral qualities. To begin with abstract moral teaching, or to put faith in it, is to misunderstand children. In morals, as in other forms of knowledge, children are overwhelmingly interested in personal and individual examples, things which have form, color, action. The attempt to sum up the important truths of a subject and present them as abstractions to children is almost certain to be a failure, pedagogically considered. It has been demonstrated again and again, even in high schools, that botany, chemistry, physics, and zoölogy cannot be taught by such brief scientific compendia of rules and principles — "Words, words, words," as Hamlet said. We cannot learn geography from definitions and map questions, nor morals from catechisms. And just as in natural science we are resorting perforce to plants, animals, and natural phenomena, so in morals we turn to the deeds and lives of men. Columbus in his varying fortunes leaves vivid impressions of the moral strength and weakness of himself and of others. John Winthrop gives frequent examples of generous and unselfish good-will to the settlers of Boston. Little Lord Fauntleroy is a better treatise on morals for children than any of our sermonizers have written. We must get at morals without moralizing and drink in moral convictions without resorting to moral platitudes. Educators are losing faith in words, definitions, and classifications. It is a truism that we can't learn chemistry or zoölogy from books alone, nor can moral judgments be rendered except from individual actions.

A little reflection will show that we are only demanding object lessons in the field of moral education, extensive, systematic object lessons; choice experiences and episodes from human life, simple and clear, painted in natural colors, as shown by our best history and literature. To appreciate the virtues and vices, to sympathize with better impulses, we must travel beyond words and definitions till we come in contact with the personal deeds that first give rise to them. The life of Martin Luther, with its faults and merits honestly represented, is a powerful moral tonic to the reader; the autobiography of Franklin brings out a great variety of homely truths in the form of interesting episodes in his career. Adam Bede and Romola impress us more powerfully and permanently than the best sermons, because the individual realism in them leads to an unequalled vividness of moral judgment upon their acts. King Lear teaches us the folly of a rash judgment with overwhelming force. Evangeline awakens our sympathies as no moralist ever dreamed of doing. Uncle Tom, in Mrs. Stowe's story, was a stronger preacher than Wendell Phillips. William Tell, in Schiller's play, kindles our love for heroic deeds into an enthusiasm. The best myths, historical biographies, novels, and dramas are the richest sources of moral stimulus because they lead us into the immediate presence of those men and women whose deeds stir up our moral natures. In the representations of the masters we are in the presence of moral ideas clothed in flesh and blood, real and yet idealized. Generosity is not a name, but the act of a person which wins our interest and favor. To get the impress of kindness we must see an act of kindness and feel the glow it produces. When Sir Philip Sidney, wounded on the battlefield and suffering with thirst, reached out his hand for a cup of water that was brought, his glance fell upon a dying soldier who viewed the cup with great desire; Sidney handed him the water with the words, "Thy necessity is greater than mine." No one can refuse his approval for this act. After telling the story of the man who went down to Jericho and fell among thieves, and then of the priest, the Levite, and the Samaritan who passed that way, Jesus put the question to his critic, "Who was neighbor to him that fell among thieves?" And the answer came even from unwilling lips, "He that showed mercy." When we see Nathan Hale on the scaffold regretting that he had but one life to lose for his country, we realize better what patriotism is. On the other hand, it is natural to condemn wrong deeds when presented clearly and objectively in the action of another. Nero caused Christians to be falsely accused and then to be condemned to the claws of wild beasts in the arena. When such cruelty is practised against the innocent and helpless, we condemn the act. When Columbus was thrown into chains instead of being rewarded, we condemn the Spaniards. In the same way the real world of persons about us, the acts of parents, companions, and teachers, are powerful in giving a good or bad tone to our sentiments, because, as living object lessons, their impress is directly and constantly upon us.

In such cases, taken from daily experience and from illustrations of personal conduct in books, it is possible to observe how moral judgments originate and by repetitions grow into convictions. They spring up naturally and surely when we understand well the circumstances under which an act was performed. The interest and sympathy felt for the persons lends great vividness to the judgments expressed. Each individual act stands out clearly and calls forth a prompt and unerring approval or disapproval. (But later the judgment must react upon our own conduct.) The examples are simple and objective, free from selfish interest on the child's part, so that good and bad acts are recognized in their true quality. These simple moral judgments are only a beginning, only a sowing of the seed. But harvests will not grow and ripen unless seed has been laid in the ground. It is a long road to travel before these early moral impressions develop into firm convictions which rule the conduct of an adult. But education is necessarily a slow process, and it is likely to be a perverted one unless the foundation is carefully laid in early years. The fitting way, then, to cultivate moral judgments, that is, to start just ideas of right and wrong, of virtues and vices, is by a regular and systematic presentation of persons illustrating noble and ignoble acts. A preference for the right and an aversion for the wrong will be the sure result of careful teaching. Habits of judging will be formed and strong moral convictions established which may be gradually brought to influence and control action.

The objector intrudes at this point with the warning that moral character consists in action and not in reading stories; that what children need is not so much abundance of this reading matter as opportunities to behave themselves in practical and social relations. At the same time we are willing to emphasize the social environment and activities which develop and confirm moral habits. But at present we are trying to define and illustrate the conditions of moral awakening and of steady moral enlightenment, and the early formation of those attractive ideals which may be strengthened and wrought into conduct as opportunity offers.

A good share of the influences that are thrown around an ordinary child needs to be counteracted. It can be done to a considerable extent by instruction. Many of the interesting characters of history are better company for us and for children than our neighbors and contemporaries. For the purposes of moral example and inspiration we may select as companions for them the best persons in history. Their acts are personal, biographical, and interesting, and appeal at once to children as well as to their elders. There is no good reason why a much greater number of our school children should not be brought under the influence of the best books suited to their age. Here is a source of educational influence of high quality which is left too much to accident and to the natural, unaided instinct of children. A few get the benefit, but many more are capable of receiving it. How much better the school choice and treatment of such books may be than the loose and miscellaneous reading of children, is discussed in "Special Method in Reading." A fit introduction of children to this class of literature should be in the hands of teachers, and all the later reading of pupils will feel the salutary effect.

If this is the proper origin and culture of moral ideas, we desire to know how to utilize it in the common school course. It can only be done by an extensive use of historical and literary materials in all grades, with the conscious purpose of shaping moral ideas and character. That the school has such influence at its disposal cannot be reasonably denied by any one who believes that the family or the church can affect the moral character of their children. It may be objected that the school thus takes up the proper work of the home, when it ought to be occupied with other things. Would that the homes were all good! But even if they were, the teacher could not fold his arms over a responsibility removed. As soon as a boy enters school, if not sooner, he begins, in some sense, to outgrow the home. New influences and interests find a lodgement in his affections. Companions, the wider range of his acquaintances, studies, and ambitions, share now with the home. John

Locke objected radically to English public schools on this account; but even if we desired, we could not resort to private tutors, as Locke did, though with no great success. The child is growing and changing. Who shall organize unity out of the maze of thoughts, interests, and influences, casting out the useless and bad, combining and strengthening the good? The more service the home renders, the better. The child's range of thought and ambition is expanding. Who has the best survey of the field? In many cases, at least, the teacher, especially where the parents lack the culture, and the children need a guide. Who spends six hours a day directing these currents of thought and interest? We are not disposed to underestimate the magnitude of the task here laid upon the teacher. The rights and duties of the home are not put in question. Indeed, the spirit of this kind of teaching is best illustrated in a good home. A teacher who has a father's anxiety in the real welfare of children will not forget his duty in watching their moral growth. The moral atmosphere of a good home will remain the ideal of the school. In fact, Herbart's plan of education originated not in a schoolroom, but in an excellent home in Switzerland, where he spent three years in the private instruction of three boys. The conscientious zeal with which he devoted himself to the moral and mental growth of these children is a model for teachers. The shaping of three characters was, according to his view, intrusted to him. The common notion of intellectual growth and strength which rules in such cases was at once subordinated to character development in the moral sense. Not that the two ideas are at all antagonistic, but one is more important than the other. The selection of reading matter, of studies, and of employments was adapted to each boy with a view to influencing conduct and moral action.

The Herbart school adheres to this view of education, and has transferred its spirit and method to the schools. The Herbartians have the hardihood, in this age of moral sceptics, to believe not only in moral example but also in moral teaching. (By moral sceptics we mean those who believe in morals but not in moral instruction.) They seek first of all historical materials of the richest moral content, in vivid personification, upon which to nourish the moral spirit of children. If properly treated, this subject-matter will soon win the children by its power over feeling and judgment. With Crusoe the child goes through every hardship and success; with Abraham he lives in tents, seeks pastures for his flocks, and generously marches out to the rescue of his kinsman. He should not read Cæsar with a slow and toilsome drag (parsing and construing) that would render a bright boy stupid. If he goes with Cæsar at all, he must build an agger, fight battles, construct bridges, and approve or condemn Cæsar's acts. But we doubt the moral value of

Cæsar's Gallic wars for children. By reading Plutarch we may see that the Latins and Greeks, before the days of their degeneracy, nourished their rising youth upon the traditions of their ancestry. This education produced a strong and sinewy brood of moral qualities. Their great men were great characters, largely because of the mother-milk of national tradition and family training. In Scotch, English, and German history we are familiar with Alfred, Bruce, Siegfried, and many other heroes of similar value in the training of youth.

It will be well for us to look into our own history and see what sort of moral heritage of educative materials it has left us. What noble examples does it furnish of right thought and action? Have we any home-bred food for the nourishment of our growing youth? Our native American history is indeed nobler in tone and more abundant. For moral educative purposes in the training of the young the history of America, from the early explorations and settlements along the Atlantic coast to the present, has scarcely a parallel in history. It was a race of moral heroes that led the first colonies to many of the early settlements. Winthrop, Penn, Williams, Oglethorpe, Raleigh, and Columbus were great and simple characters, deeply moral and practical. For culture purposes, where can their equal be found? And where was given a better opportunity for the display of personal virtues than by the leaders of these little danger-encircled communities? The leaven of purity, piety, and manly independence which they brought with them and illustrated, has never ceased to work powerfully among our people. Add to the above list such names as Davenport, Hooker, Eliot, Stark, Putnam, Washington, Champlain, Marquette, La Salle, Stuyvesant, Sevier, Robertson, Boone, Clark, Lincoln, and Frémont, — men who struggled with pioneer dangers and hardships. Then join to this list the names of leaders and statesmen, poets, philanthropists, and inventors, preachers and educators of the people, and we have a remarkable list of men, distinguished by strength and excellence of personal character. Why not bring the children into direct contact with these characters in the intermediate grades, not by short and sketchy stories, but by life pictures of these men and their surroundings? We have not been wholly lacking in literary artists who have worked up a part of these materials into a more durable and acceptable form for our schools. We need to make an abundant use of this and other history for our boys and girls, not by devoting a year in the upper grades to a barren outline of American annals, but by a proper distribution of these and other similar rich treasures throughout the grades of the common school.

Tradition and fiction are scarcely less valuable than biography and history, because of their vivid portrayal of strong and typical characters. Our own literature, and the world's literature at large, are a storehouse well stocked with moral educative materials, properly suited to children at different ages, if only sorted, selected, and arranged. But this requires broad knowledge of our best literature and clear insight into child-character at different ages. This problem will not be solved in a day, nor in a lifetime.

In making a progressive series of our best historical and literary products, it is necessary to select those materials which are better adapted than others to interest, influence, and mould the character of children at each time of life. It is now generally agreed by the best teachers that these selections shall be the best stories and classical masterpieces, — not in fragments, but as wholes. They should be those materials that bear the stamp of genuine nobility. Goethe says, "The best is good enough for children." For some years past, in our grammar grades we have been using some of the best selections of Whittier, Longfellow, Bryant, and others; and we are not even frightened by the length of such productions as "Evangeline," "The Lady of the Lake," or "Julius Cæsar." A simple adapted version of "Robinson Crusoe" is used in some schools as a second reader. From time immemorial choice selections of prose and verse have formed the staple of our readers above the third. But generally these selections are scrappy and fragmentary. Few of the great masterpieces have been used, because most of them are supposed to be too long. Broken fragments of our choice literary products have been served up, but the best literary works as wholes have never been given to the children in the schools. The Greek youth were better served with the "Iliad" and "Odyssey," and some of our grandfathers with the tales of the Old Testament. We now go still farther back in the child-life and make use of fairy tales in the first grade. But many are not yet able to realize that select fairy stories are genuinely classical, and that they are as well adapted to stimulate the minds of children as "Hamlet" the minds of adults.[1]

The chief aim of our schools all along has not been an appreciation of literary masterpieces, either in their moral or art value, but the acquisition of skill in reading, fluency, and naturalness of expression. Our schools have been almost completely absorbed in the purely formal use of our literary materials, learning to read in the earlier grades and learning to read with rhetorical expression and confidence in the later ones. In the present argument our chief concern is not with the formal use of literary materials for practice in reading, but with the moral culture, conviction, and habit of life they may foster. Nor have we chiefly in view the art side of our best literary pieces. Appreciation of beauty in poetry and of strength in prose is admirable and should contribute powerfully to the main purpose. Coming in direct and vivid contact with manly deeds or with unselfish acts as personified in choice biography, history, fiction, and real life, will inspire children with thoughts that make life worth living. Neither formal skill in reading nor appreciation of literary art can atone for the lack of direct moral incentive which historical studies should give. All three ends should be reached.

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[1] See "Special Method in Primary Reading and Story."

Many teachers are now calling for a change in the spirit with which the best biography and literature are used. They call for an improvement in the quality and an increase in the quantity of complete historical episodes and of literary masterpieces. An appreciative reading of "Ivanhoe" revives the spirit of that age. The life of Samuel Adams is an epic that gives the youth a chance to live amid the stirring scenes of Boston in a notable time. Children are to live in thought and interest the lives of many men of other generations, as of Tell, Columbus, Livingstone, Lincoln, Penn, Franklin, and Fulton. They are to partake of the experiences of the best typical men in the story of our own and of other countries.

The use of the best historical and literary works as a means of strengthening moral motives and principles with children whose minds and characters are developing, is a high aim in itself, and it will add interest and life to the formal studies, such as reading, spelling, grammar, and composition, which spring out of this valuable subject-matter.

History, in this broad and liberal sense, should be a powerful constituent of a child's education. That subject-matter which contains the essence of moral culture in generative form deserves to constitute the chief mental food of young people. The conviction of the high moral value of historic subjects and of their peculiar adaptability to children at different ages, brings us to a positive judgment as to their relative value among studies. The first question, preliminary to all others in the common school course, "What is the most important study?" is answered by putting the study of man in history and literature at the head of the list.

Natural science takes the second place. In many respects it is coördinate with history. The object world, which is so interesting, so informing, and so interwoven with the needs, labors, and progress of men, furnishes the second great constituent of education for children. Botany, zoölogy, and the other natural sciences, taken as a unit, constitute the field of nature apart from man. They furnish us an understanding of the varied objects and complex phenomena of nature. It is one of the imperative needs of all human minds that have retained their childlike thoughtfulness and spirit of inquiry, to desire to understand nature, to classify the variety of objects and appearances, to trace the chain of causes, and to search out the simple laws of nature's operations. The command early came to men to subdue the earth, and we understand better than primitive man that it is subdued through investigation and study. All the forces and bounties of nature are to be made serviceable to us, and it can only be done by understanding her facts and laws. The road to mastery leads through patient observation, experiment, and study.

But we are concerned with the educational value of the natural sciences. Waitz says: —

"A correct philosophy of the world and of life is possible to a person only on the basis of a knowledge of one's self and of one's relation to surrounding nature."

Diesterweg says: —

"No one can afford to neglect a knowledge of nature who desires to get a comprehension of the world and of God according to human possibility, or who desires to find his proper relation to Him and to real things. He who knows nothing of human history is an ignoramus, likewise he who knows nothing of natural science. To know nothing of either is a pure shame. Ignorance of nature is an unpardonable perversion."

Kraepelin speaks as follows: —

"Instruction should open up to a pupil an understanding of the present, and thereby furnish a basis for a frank and many-sided philosophy of life, resting upon reality. But to the present belongs the world outside of us. Of this present there can be no such thing as an understanding unless it relates not only to inter-human relations, but also to relations of man to animal, of animal to plant, and of organic life to inorganic life. The necessity of assuming a relation of our environment is unavoidable, and this can only be done by acquainting ourselves with the surrounding world in every direction. This requirement would remain in force, though man, like a god, were set above nature and her laws. But man lives, acts, and dies not outside of but within the circle of nature's laws. This maxim is axiomatic and contains the final judgment against those who claim that a comprehensive but unified philosophy of life is possible without a knowledge of nature."

Herbart says: —

"Here (in nature) lies the abode of real truth, which does not retreat before tests into an inaccessible past (as does history). This genuinely empirical character distinguishes the natural sciences and makes their loss irretrievable. It is here (in nature) that the object disentangles itself from all fancies and opinions, and constantly stimulates the spirit of observation. Here, then, is found an obstruction to extravagant thinking, such as the sciences themselves could not better devise."

Ziller says: —

"The natural sciences are necessary in education because from the province of nature (as well as from history) are derived those means and resources which are necessary to accomplish the purposes of the will in action. Means and forces are the natural conditions for the realization of aims. Without knowledge of and intelligent power over nature, it is difficult to realize that certain aims are possible; action cannot be successful; will effort, based upon the firm conviction of ability, that is, judicious exercise of will, is impossible."

We quote also from Professor Rein: —

"Let us observe in passing, that in the great industrial contest between civilized nations, that people will suffer defeat which falls behind in the culture of natural science, and for this reason the motive of self-protection would demand natural science instruction. In favor of this teaching, the claim is further made that no science is so well adapted to train the mind to inductive thought processes as that which rests entirely upon induction, and that natural science study is in a position to resist more easily and successfully than all other studies the deeply rooted tendency in all branches to substitute words for ideas."

Rein ("Das vierte Schuljahr") explains further the leading ideas and standpoints which have appeared in historical order among science teachers in the common school. From the first crude ideas there has been marked progress toward higher aims in science teaching.

1. Natural history stories for entertainment. Many curious and entertaining facts in connection with animal life were searched out, more especially unusual and spicy anecdotes of shrewdness and intelligence. Some of the old readers, and even of the recent ones, are enriched with such marvels.

2. Utility, or the study of things in nature that are directly useful or hurtful to man. Whatever fruits or animals or herbs are of plain service to man, as well as things poisonous or dangerous, were studied because such information would be of future service. It is a purely practical aim, at first very narrow, but in an enlarged and liberal sense of much importance.

3. Training of the senses and of the observing power. By a study and description of natural objects sense perception was to be sharpened and a habit of close observation formed. Among science teachers to-day no aim is more emphasized than this. It also stores away a body of useful ideas of great future value. This is an intellectual aim that accords better with the purpose of the school than the preceding.

4. Analysis and determination of specimens. To examine and trace a plant, mineral, or insect to its true classification and name has occupied much of the time of students. It requires nice discrimination, a comprehensive grasp of relations, and a power to

seize and hold common characteristics. Many of our text-books and courses of study are based chiefly upon this idea.

5. System-making, or the reduction of all things in nature to a systematic whole, with a place for everything. Some of the greatest scientists, Linnæus, for example, looked upon scientific classification as the chief aim of nature study. It has had a great influence upon schools and teachers. The attempt to compress everything into a system has led to many text-books which are but brief summaries of sciences like zoölogy, botany, and physics. Scientific classification is very important, but the attempt to make it a leading aim in teaching children is a mistake.

We may add that nature study is felt by all to offer abundant scope to the exercise of the æsthetic faculty. There is great variety of beauty and gracefulness in natural forms in plant and animal; the rich or delicate coloring of the clouds, of birds, of insects, and of plants, gives constant pleasure. Then there are grand and impressive scenery and phenomena in nature, and melody and harmony in nature's voices.

These various aims of science study are valuable to the teacher as showing him the scope of his work; but a higher and more comprehensive standpoint has been reached. We now realize that the great purpose of this study is insight into nature, into this whole physical environment, with a view to a better appreciation of her objects, forces, and laws, and of their bearing on human life and progress.

All these purposes thus far developed in schools are to be considered as valuable subsidiary aims, leading up to the central purpose of the study of natural sciences, which is "An understanding of life, and of the powers and of the unity which express themselves in nature"; or, as Kraepelin says, —

"Nature should not appear to man as an inextricable chaos, but as a well-ordered mechanism, the parts fitting exactly to each other, controlled by unchanging laws, and in perpetual action and production."

Humboldt is further quoted: —

"Nature to the mature mind is unity in variety, unity of the manifold in form and combination, the content or sum total of natural things and natural forces as a living whole. The weightiest result, therefore, of deep physical study is, by beginning with the individual, to grasp all that the discoveries of recent times reveal to us, to separate single things critically and yet not be overcome by the mass of details, mindful of the high destiny of man, to comprehend the mind of nature, which lies concealed under the mantle of phenomena."

This sounds visionary and impracticable for children of the common schools, especially when we know that much lower aims have not been successfully reached. In fact it cannot be said that the natural sciences have any recognized standing in the common school course. But it is worth the while to inquire whether natural sciences will ever be taught as they should be until the best attainable aims become the dominant principles for guiding teachers. Stripped of its rhetoric, the above-mentioned aim, " an understanding of life and of the unity of nature," may prove a practical and inspiring guide to the teacher.

If we look upon nature as a field of observation and study which can be grasped as a whole, both as a work of creation and as contributing in multiplied ways to man's needs, its proper study gives a many-sided culture to the mind. This leading purpose will bring into relation and unity all the subordinate aims of science teaching, such as information, utility, training of the senses and judgment and of the power to compare and classify.

For the accomplishment of this great purpose of gaining insight into nature's many-sided activities, there are several simple means not yet mentioned. Running through nature are great principles and laws which can be studied upon concrete examples, plain and interesting to a child. The study of the squirrel as to its home, habits, organs, and natural activities in the woods, will show how strangely adapted it is to its surroundings. But an observation of the birds in the air and fishes in the water reveals the same curious fitness to surrounding nature. The study of plants and animals in their adaptation to environment, of the relation between organ and function, between organs, mode of life, and environment, leads up to a general law which applies to all plants and animals. The law of growth and development, from the simple germ to the mature life-form, can be seen in the butterfly, the frog, and the sunflower. These laws and others in biology, if developed on concrete specimens, give much insight into the whole realm of nature, more stimulating by far than that based on scientific classifications, as orders, families, and species. The great and simple outlines of nature's work begin to appear out of such laws.

Again, the study of the whole life-history of a plant or animal, in its relations to the inorganic world and to other plants and animals, is always a cross-section in the sciences and shows how all the natural sciences are knit together into a causal unity. Take the life-history of a hickory tree, — as it germinates and grows from the seed, how it draws from the earth and air; the effect of storms, seasons, and lightning upon it; how it later furnishes huts to the squirrels and boys; its branches may be the nesting-place for birds and its bark for insects; finally, the uses of its tough wood for man are seen. The life of a squirrel or of a honey-bee furnishes also a cross-section through all the sciences from the inorganic world up to man.

If in tracing life-histories we take care to select typical subjects which exemplify, perhaps, thousands of similar cases, we shall materially shorten the road leading toward insight into nature. These types are concrete, and have all the interest and attractiveness of individual life, but they also bring out characteristics which explain myriads of similar phenomena. A careful and detailed study of a single tree like the maple, with the circulation of the sap and the function of roots, bark, leaves, and woody fibre, will give an insight into the processes of growth upon which the life of the tree depends, and these processes will easily appear to be true of all tree and plant forms.

In nature as it shows itself in the woods or in the pond, there is such a mingling and interdependence of the natural sciences upon each other that the book of nature seems totally different from books of botany, physics, and zoölogy as made by men. In the forest we find close together trees of many kinds, shrubs, flowering plants, vines, mosses, and ferns; grasses, beetles, worms and birds, squirrels, owls, and sunshine, rocks, soil, and springs, summer and winter, storms, frosts, and drouth. Plants depend upon the soil and upon each other. The birds and squirrels find their home and food among the trees and plants. The trees seem to grow together as if they needed each others' companionship. All the plants and animals depend upon the soil, air, and climate, and the whole wood changes its garb and partly its guests with the seasons. A forest is a life society, consisting of mutually dependent parts. How nature disregards our conventional distinctions between the natural sciences! We need no better proof than this, that they should not be taught chiefly from books. A child might learn a myriad of things in the woods, and gain much insight into nature's ways, without making any clear distinction between botany, zoölogy, and geology. Herein is also the proof that text-books are needed as a guide in nature's labyrinth. If the frequency and intimacy of mutual relations are any proof of unity, the natural sciences are a unit and have a right to be called by one name, nature study.

In the study of laws, life-histories, and life-groups, the causal relations in nature are found to be wonderfully stimulating to those who have begun to trace them out. The child as well as the mature scientist finds in these causal connections materials of absorbing interest.

It is plain, therefore, that the lines tending toward unity in nature study are numerous and strong, such as the scientific classifications of our text-books, the working out of general laws whether in biology or in physical science, the study of life-histories in vegetable and animal, and the observation of life societies in the close mutual relations of the different parts or individuals.

If a course of nature studies is begun in the first grade and carried systematically through all the years up to the eighth grade, is it not reasonable to suppose that real insight into nature, based on observation taken at first hand, may be reached? It will involve a study of living plants and animals, minerals, physical apparatus and devices, chemical experiments, the making of collections, regular excursions for the observation of the neighboring fields, forests, and streams, and the working over of these and other concrete experiences from all sources through skilful class teaching.

The first great result to a child of such a series of studies is an intelligent and rational understanding of his home, the world, his natural environment. He will have a seeing eye and an appreciative mind for the thousand things surrounding his daily life, where the ignorant toiler sees but understands nothing.

A second advantage which we can only hint at, while incidental, is almost equally important. We have been considering nature chiefly as a realm by itself, apart from men. But the utilities of natural science in individual life and in society are so manifold that we accept many of the finest products of skill and art as if they were natural products — as if gold coins, silk dresses, and fine pictures grew on the bushes and only waited to be picked. The thousandfold applications of natural science to human industry and comfort deserve to be perceived as the result of labor and inventive skill. Our much lauded steam engines, telegraphs, microscopes, sewing machines, reapers, iron ships, and printing presses are examples, not of a few, but of myriads of things that natural science has secured. But how many children on leaving the common school understand the principle involved in any one of the machines mentioned, subjects of common talk as they are? As children leave the schools at fourteen or fifteen, they should know and appreciate many such things, wherein man, by his wit and ingenious use of nature's forces, has triumphed over difficulties. How are glass and soap made? What has a knowledge of natural science to do with the construction of stoves, furnaces, and lamps? How are iron, silver, and copper ore mined and reduced? How is sugar obtained from maple trees, cane, and beet roots? How does a suction pump work, and why? Without a knowledge of such applications of natural science we should be thrown back into barbarism. These things also, since they form such an important part of every child's environment, should be understood, but not simply for direct utility.

Historically considered, the study of natural science is the study of man's long-continued struggle with nature and of his gradual triumph. It ends with insight into nature and into those contrivances of men by which her laws and forces are utilized. The whole subject of nature, her laws and powers, must not remain a sealed book to the masses of the people. Scientists, inventors, and scholars may lead the way, but they are only pioneers. The thousands of the children of the people are treading at their heels and must be initiated into the mysteries.

Our knowledge of these principles and appliances constitute, in fact, a good share of the foundation upon which our whole culture status rests. Without natural science we should understand neither nature nor society. Spencer, in "Education," pp. 44–54, shows the wide-reaching value of science knowledge in our modern life: —

"For leaving out only some very small classes, what are all men employed in? They are employed in production, preparation, and distribution of commodities. And on what does efficiency in the production, preparation, and distribution of commodities depend? It depends on the use of methods fitted to the respective nature of these commodities; it depends on an adequate knowledge of their physical, chemical, or vital properties, as the case may be; that is, it depends on science. This order of knowledge, which is in great part ignored in our school courses, is the order of knowledge underlying the right performance of all those processes by which civilized life is made possible. Undeniable as is this truth, and thrust upon us as it is at every turn, there seems to be no living consciousness of it. Its very familiarity makes it unregarded. To give due weight to our argument, we must therefore realize this truth to the reader by a rapid review of the facts."

He then illustrates, in interesting detail, the varied applications of mathematics, physics, chemistry, biology, and social science to the industries and economies of life, and concludes as follows: —

"That which our school courses leave almost entirely out we thus find to be that which most nearly concerns the business of life. All our industries would cease, were it not for that information which men begin to acquire as they best may after their education is said to be finished. And were it not for this information that has been from age to age accumulated and spread by unofficial means, these industries would never have existed. Had there been no teaching but such as is given in our public schools, England would now be what it was in feudal times. That increasing acquaintance with the laws of nature which has through successive ages enabled us to subjugate nature to our needs, and in these days gives to the common laborer comforts which a few centuries ago kings could not purchase, is scarcely in any degree owed to the appointed means of instructing our youth. The vital knowledge — that by which we have grown as a nation to what we are, and which now underlies our whole existence — is a knowledge that has got itself taught in nooks and corners, while the ordained agencies for teaching have been mumbling little else but dead formulas."

Not only the specialists in natural science, whose interest and enthusiasm are largely absorbed in these studies, but many other energetic teachers, are persuaded that the culture value of nature studies is on a par with that of historical studies. But on account of the present lack of system and of clear purpose in natural science teachers, the first great problem in this field of common school effort is to select the material and perfect the method of studying nature with children.

Our estimate of the value of natural science for culture and for discipline is confirmed by the opinion of educational reformers and by the changes and progress in schools. An inquiry into the history of education in Europe and in America since the Reformation will show that the movement toward nature study has been accumulating momentum for more than three hundred years. In spite of the failure of such men as Comenius, Ratich, Basedow, and Rousseau to secure the introduction of these studies in a liberal degree, in spite of the enormous influence of custom and prejudice in favor of Latin and other traditional studies, the natural sciences have made recently such surprising advances, and have so penetrated and transformed our modern life, that we are simply compelled, even in the common school, to take heed of these great living educational forces already at work.

The universities of England and of the United

States have been largely transformed within the last forty years by the introduction, on a grand scale, of modern studies, particularly of the natural sciences. The fitting schools, academies, and high schools have had no choice but to follow this lead. Since the forces that produced this result in higher education sprang up largely outside of our institutions of learning, the movement is not likely to cease till the common school has been changed in the same way. The educational question of the future is not whether historical or natural science or formal studies are to monopolize the school course, but rather how these three indispensable elements of every child's education may be best harmonized and wrought into a unit.

But the question that confronts us at every turn is, What is the disciplinary value of nature study? We know, say the opponents, what a vigorous training in languages and mathematics can do for a student. What results in this direction can the natural sciences tabulate? The champions of natural science point with pride to the great men who have been trained and developed in such studies. For inductive thinking the natural sciences offer the best materials. To cultivate self-reliance there is nothing like turning a student loose in nature under a skilled instructor. The spirit of investigation and of accurate thinking is claimed as a peculiar product of nature study. It is called, par excellence, "the scientific spirit."

The undue reverence for authority produced by literary studies is not a weakness of natural science pursuits. But intense interest and devotion are combined with scientific accuracy and fidelity to nature and her laws.

We do not feel called upon to attempt a settlement of this dispute. We have already assumed that history in the broad sense (including languages) and natural science (or nature study) are the two great staples of the common school course, and that so far as discipline is concerned one is as important as the other. But we believe that those educators whose first, middle, and last question is, "What is the disciplinary value of a study?" have mistaken the primary problem of education. Just as in the proper training of the body, the strength and skill of a professional athlete are, in no sense, the true aim, but physical soundness, health, and vigor, so in mind culture, not extraordinary skill in mental gymnastics of the severest sort is the essential aim, but mental soundness, integrity, and motive. The underlying question in education is not, How strong or incisive is his mind? (this depends largely upon heredity and native endowment) but, What is its quality and its temper? If might is right, then mental strength is to be gained at all hazards. But if right is higher than might, then mental skill and power are only secondary aims. So long as we are dealing with fundamental aims in such a serious business as education, why stop short of that ideal which is manifestly the best? We have no controversy with the highest mental discipline and strength that are consistent with all-round mental soundness. Our better teachers are not lacking in appreciation for the value of what is called formal mental discipline, but they do generally lack faith in the innate power of the best studies to arouse interest and mental life. They emphasize the drill more than the content and inspiration of the author. Both in theory and in practice they are greatly lacking in the intellectual sympathy and moral power which result from bringing the minds of students into direct contact with the noblest products of God's work in history and in the object world. Here we can put our finger on the radical weakness of our school work.

The really soul-inspiring teachers have not been formalists nor drill-masters alone. Friedrich August Wolf, for example, the great German philologist, was probably the most inspiring teacher of classical languages that Germany has had. But to what was his remarkable influence as a teacher of young men due? We usually think of a philologist as one who digs among the roots of dead languages, who worships the forms of speech and the laws of grammar. Doubtless he and his pupils were much taken up with these things, but they were not the prime sources of his and their interest. Wolf defined philology as "the knowledge of human nature as exhibited in antiquity." He studied with great avidity everything that could throw light upon the lives, character, and language of the ancients, their biographies, histories, geography, climate, dress, implements, their sculpture, monuments, buildings, and tombs. Approaching the literature and language of the Greeks with this abundant knowledge of their real surroundings and conditions of life, he saw the deeper, fuller significance of every classical author, and the great literary masterpieces were perceived as the expression of the national life. He appreciated language as the wonderful medium through which the more wonderful life of the versatile Greek expressed itself. The reason he was such a great philologist was because he was so great a realist, a man who was intensely interested in the Greek people, their history and life. Words alone had little charm for him. No great teacher has been simply a word-monger.

For the present we leave the question of discipline unanswered, though we are disposed to think that those studies which introduce children to the two great fields of real knowledge, and which arouse a strong desire to solve the problems found there, will also furnish the most valuable discipline.

The formal studies, such as reading, spelling, writing, language, and much of arithmetic, have thus far appropriated the best share of school-time. They are the tools for acquiring and formulating knowledge rather than knowledge itself. They are so indispensable in life that people have acquired a sort of superstitious respect for them. They are generally considered as of primary importance while other things are taken as secondary. By virtue of this excessive estimation the formal studies have become so strongly intrenched in the practice of the schools that they are really a heavy obstacle to educational progress. They have been so long regarded as the only gateway to knowledge that any one who tries to climb in some other way is regarded as a thief and a robber. We forget that Homer's great poems were composed and preserved for centuries before letters were invented.

As more thought is expended on studies and methods of learning, the more the thinkers are inclined to exactly reverse the educational machinery. They say, "Thought studies must precede form studies." We should everywhere begin with valuable and interesting thought materials in history and natural science and let language, reading, spelling, and drawing follow. It is a thing much more easily said than done, but many active teachers are really doing it, and many others are wondering how it may be done. The advantage of putting the concrete realities of thought before children at first is that they give a powerful impetus to mental life, while pure formal studies in most cases have a deadening effect and gradually put a child to sleep. One of the great problems of school work is how to get more interest and instructive thought into school exercises.

This inversion of the old order so that the content studies are put foremost and the formal or symbolic studies into a secondary rôle, suggests that incidental acquisition of symbols which has been urged so much of late by progressive teachers. It is well known that children will greatly increase their mastery of a reading vocabulary by voluntarily reading stories or books which they enjoy. In such cases the children are not consciously trying to master the symbols and vocabularies; but this result is attained incidentally, as a natural by-product of a healthy, energetic interest. This hint has led teachers throughout the grades to put more interesting and valuable reading matter, suited to the age, in each grade, so that children may master the formal difficulties with greater spontaneous energy and ease. The doctrine of incidental teaching has gained such foothold, that it has led, in some schools, to the extinction of certain studies, like language, drawing, and arithmetic, as independent studies in some of the grades. But this will be treated more fully under the subject "Correlation of Studies."

We are now in a position to give a concluding estimate upon the relative value of these three elements in school education. History contributes the materials from which motives and moral impulses spring. It cultivates and strengthens moral convictions by the use of inspiring examples. The character of each child should be drawn into harmony with the highest impulses that men have felt. A desire to be the author of good to others should be developed into a practical ruling motive. Natural science, on the other hand, supplies a knowledge of the ordinary means and appliances by which the purposes of life are realized. It gives us proper insight into the conditions of life and puts us into intelligent relation to our environment. Not only must a child be supplied with the necessaries of life, but he must appreciate the needs of health and understand the economies of society, such as the necessity of mental and manual labor, the right use of the products and forces of nature, and the advantage of man's inventions and devices. In a plan of popular education these two culture elements should mingle (history and natural science). In the case of all sorts of people in society the ability to execute high moral purposes depends largely upon a ready, practical insight into natural conditions. We are not thinking of the bread-and-butter phase of life and of the aid afforded by the sciences in making a living, but of the all-round, practical utility of natural science as a necessary supplement to moral training.

One of the best tests of a system of education is the preparation it gives for life in a liberal sense. When a child, leaving school behind, develops into a citizen, what tests are applied to him? The questions submitted to his judgment in his relations to the family and to society call for a quick and varied knowledge of men, insight into character, and for a large amount of practical information of natural science. He is asked to vote intelligently on social, political, sanitary, and economic questions; to judge of men's motives, opinions, and character; to vote upon or perhaps direct the management of poorhouses, asylums, and penitentiaries; in towns to decide questions of drainage, police, water supply, public health, and school administration; to make contracts for public buildings and bridges; to grant licenses and franchises; to serve on juries or as representatives of the people. These are not professional matters alone; they are the common duties of all citizens of a sound mind. These things each person should know how to judge, whether he be a blacksmith, a merchant, or a housekeeper. In all such matters he must be not only a judge of others but an actor under the guidance of right motives and information. Again, in the bringing up of children, in the domestic arrangements of every home, and in a proper care for the minds and bodies of both parents and children, a multitude of practical problems from each of the great fields of real knowledge must be met and solved.

A medical missionary illustrates this combination of historical and natural science elements. His life purpose is drawn from history, from the life of Christ, and from the traditional incentives of the Church. The means by which he is to make himself practically felt are obtained from his study of medicine and from the sciences upon which it depends. These elements form the basis of his influence. This illustration, however, savors of professional rather than of general education, and we are concerned only with the latter. But the education of every child is analogous to that of the medical missionary in its two constituent elements.

As a matter of fact, neither history nor natural science occupies any such prominence in the school course as we have judged fitting. Much thoughtful study, experience in teaching, and pioneer labor in partially new fields will be necessary in order to bring into existence such a course of study based upon the best materials. Many teachers already recognize the necessity for it, and see before them a land of plenty as compared with the half-desert barrenness revealed in our present school course.

Two powerful convictions in the minds of those responsible for education have contributed to produce this desert-like condition in children's school employments, and this brings us to a discussion of the overestimation in which purely formal studies are held. The first article of faith rests upon the unshaken belief in the practical studies, — reading, writing, and arithmetic. They are still looked upon as a barrier that must be scaled before the real work of education can begin. Learn to read, write, and figure, and then the world of knowledge as well as of business is at your command. But many children find the barrier so difficult to scale that they really never get into the fields of knowledge. Many of our most thoroughgoing educators still firmly believe that a child cannot learn anything worth mentioning till he has first learned to read. But however deeply rooted this confidence in the purely formal work of the early school years may be, it must break down as soon as means are devised for putting the realities of interesting knowledge before and underneath all the forms of expression. Let the necessity for expression spring from the real objects of study. Those children to whom the memorizing and drill upon forms of expression become tedious, deserve our sympathy. There is a kind of knowledge adapted to arouse these dull ones to their full capacity of interest. "Or what man is there of you, whom if his son ask bread, will he give him a stone?" With many a child the first reader, the arithmetic, or the grammar becomes a veritable stone. There is no good reason why the sole burden of work in early school grades should rest upon the learning of the pure formalities of knowledge. Children's minds are not adapted to an exclusive diet of this kind. The fact that children have good memories is no reason why their minds should be gorged with the driest memory materials. They have a healthy interest in people, whether in life or in story, and in the objects in nature around them. What is thus preëminently true of the primary grades is true to a large extent throughout all the grades of the common school. It seems almost curious that the more tender the plants, the more barren and inhospitable the soil upon which they are expected to grow. Fortunately these little ones have such an exuberance of life that it is not easily quenched. Formal knowledge stands first in our common school course, and real studies are allowed to pick up such crumbs of comfort as may chance to fall. We believe in formal studies and in their complete mastery in the common school, but they should stand in the place of service to real studies. How powerful the tendency has been, and still is, toward pure formal drill and word-memory, is apparent from the fact that even geography and history, which are not at all formal studies, but full to overflowing with interesting facts and laws, have been reduced to a dry memorizing of words, phrases, and stereotyped sentences.

It is not difficult to understand why the numerous body of teachers, who easily drift into mechanical methods, has a preference for formal studies. They are comparatively easy and humdrum and keep pupils busy. Real studies, if taught with any sort of fitness, require energy, interest, and versatility, besides much outside work in preparing material.

The second article of faith is a still stronger one. The better class of energetic teachers would never have been won over to formal studies on purely utilitarian grounds. A second conviction weighs heavily in their minds. "The discipline of the mental faculties" is a talisman of unusual potency with them. They prize arithmetic and grammar more for this than for any direct practical value. The idea of mental discipline, of training the faculties, is so grained into all our educational thinking that it crops out in a hundred ways and holds our courses of study in the beaten track of formal training with a steadiness that is astonishing. These friends believe that we are taking the backbone out of education by making it interesting. The culmination of this educational doctrine is reached when it is said that the most valuable thing learned in school or out of it, is to do and do vigorously that which is most disagreeable. The training of the will to meet difficulties unflinchingly is their aim, and it is a laudable one. These stalwart apostles of educational hardship and difficulty are in constant fear lest we shall make studies interesting and attractive and thus undermine the energy of the will. But the question at once arises: Does not the will always act from motives of some sort? And is there any motive or incentive so stimulating to the will as a steady and constantly increasing interest in studies? It is able to meet and to surmount great difficulties.

We wish to assure our stalwart friends that we still adhere to the good old doctrine that "There is no royal road to learning." There is no way of putting aside the real difficulties that are found in every study, no way of grading up the valleys and tunnelling through the hills so as to get the even monotony of a railroad track through the rough or mountainous parts of education. Every child must meet and master the difficulties of learning for himself. There are no palace cars with reclining chairs to carry him to the summit of real difficulties. The character-developing power that lies in the mastery of hard tasks constitutes one of their chief merits. Accepting this as a fundamental truth in education, the problem for our solution is, how to stimulate children to encounter difficulties. Many children have little inclination to sacrifice their ease to the cause of learning, and our dull methods of teaching confirm them in their indifference to educational incentives. Any child who, like Hugh Miller or Abraham Lincoln, already possesses an insatiable thirst for knowledge will allow no difficulties or hardships to stand in the way of progress. This original appetite and thirst for knowledge which the select few have often manifested in childhood, is more valuable than anything the schools can give. With the majority of children we can certainly do nothing better than to nurture such a taste for knowledge into vigorous life. It will not do to assume that the average of children have any such original energy or momentum to lead them to scale the heights of even ordinary knowledge.

Nor will it do to rely too much upon a forcing process, that is, by means of threats, severity, and discipline, to carry children against their will toward the educational goal.

> "Be not like dumb driven cattle,
> Be a hero in the strife,"

is sound educational doctrine.

The thing for teachers to do is to cultivate in children all healthy appetites for knowledge, to set up interesting aims and desires at every step, to lead the approach to different fields of knowledge in the spirit of conquest.

In the business world and in professional life men and women work with abundant energy and will, because they have desirable ends in view. The hireling knows no such generous stimulus. Business life is full of irksome and difficult tasks, but the aim in view carries people through them. We shall not eliminate the disagreeable and irksome from school tasks, but try to create in children such a spirit and ambition as will lead to greater exertions. To implant vigorous aims and incentives in children is the great privilege of the teacher. We shall some day learn that when a boy cracks a nut he does so because there may be a kernel in it, not because the shell is hard.

There are two important elements of culture, which have been working their way into our schools in recent years, suggested by the terms "manual training" and "art studies." They have brought us to the point where we can see two comprehensive and difficult problems, toward the solution of which only the beginnings have been made in the common school. Manual training has come to include not only the shop work, but all forms of industrial effort, the making, moulding, and construction exercises of primary children, domestic science, and the fashioning of materials into useful constructions in geography, history, and physical science. This notion of giving scope to the motor and constructive activities of children has far outrun the original meaning of manual training. It has developed into the conception of reorganizing the school course around the spontaneous activities of children, and of turning these activities into social and industrial channels.

From the high school, manual training is filtering down into grammar and intermediate grades, and from the kindergarten the games and occupations have ascended into primary rooms, so that manual training or constructive work is present in some form in all the grades. There naturally rises the difficult problem for the school, how to arrange these miscellaneous activities into a connected and consistent series throughout the school course. But this is a very superficial way of stating the problem. The growing conception of the educational importance of the outgoing energies of children threatens to transfer the centre of gravity from the present studies to the child, and to demand a reorganization of educative materials and activities around this new centre.

This step seems to be the final one in a long series of historical changes in education. Three hundred years ago an almost pure verbalism prevailed in the schools, with no regard for children. Comenius found that pictures were the best available means, at that time, for putting more of realism into Latin forms. With Basedow and Pestalozzi there was a further step toward realism in object lessons as a means of interesting the child and of concreting his ideas. In the nineteenth century the schools passed on from the mere observation of objects to a handling and working with objects, and even to their construction in manual training. Now at last we are summoned by some of our foremost thinkers to make the final leap away from verbalism, even beyond manual training as an instrument of culture, into the spontaneous energies and impulses of the child. Henceforth, we are to survey the studies from the standpoint of the child and his impulses, and no longer behold the child, at a distance, from the standpoint of the studies. What the outcome will be is difficult to tell. Whether the child can hold his own against the world, and keep the education on his side or not, is the problem.

The child, we say, must be educated for society, but Colonel Parker lived long enough to convince us that the world must bow before the child.

We are forced to believe that the child, as the product of the race development up to the present, by the growth of his inherited spontaneous energies, is capable of appropriating the best culture materials of the race from which he springs, and of the society into which he is born. In other words, society with its external demands can be brought into harmony with the child and his internal needs. Confidence in this outcome is based upon a belief in the inborn kinship between the child and society.

The value of art studies, including music, drawing, painting, sculpture, architecture, and literature, is obtaining more and more recognition. Not that our school programme is to be loaded with additional art studies, but the artistic sense, the appreciation of the forms of art, and the enrichment of school topics in all studies by seeing them from the artist's point of view, will follow.

Just as the best elements of history, science, and literature are being slowly selected, as to their fitness, and incorporated into the school course, so the artistic products of the best art periods of the world are being selected and brought to the attention of teachers and gradually absorbed into the life of the school. This has scarcely begun, as yet, in most of our schools, but it is easy to see how important and far-reaching will be the results. The cultivation of these æsthetic interests in all the great studies of the school will lend a deeper and more permanent enthusiasm to education.

The adjustment of manual training and art studies to the other studies will be discussed in the chapter on concentration.

Summary. — History, in the liberal sense, surveys the field of human life in all its typical forms and furnishes the best illustrative moral materials. Nature study opens the door to the real world in all its beauty, variety, and law. The formal studies constitute an indispensable part of useful and disciplinary knowledge, but they should occupy a secondary place in courses of study because they deal with the form rather than with the content of the sciences. It is a fundamental error to place formal studies in the centre of the school course and to subordinate everything to their mastery. History and natural science, on the contrary, having the richest knowledge content, constitute a natural centre for all educative efforts. They make possible a strong development of will energy, because their interesting materials furnish strong and legitimate incentives to mental activity and an enlarged field and opportunity to voluntary effort in pursuit of clear and attractive aims.

CHAPTER III

INTEREST

The girl intent upon the story of Cinderella, the college youth watching a game of foot-ball, the children at home listening at the mother's knee to the adventures of Jack climbing the bean-stalk, the boy pulling in a good-sized bass or pickerel with hook and line, the little girl dressing her doll and preparing for a miniature tea party, the boy with his tools making a pair of bob-sleds, or coasting upon them down the long hill with his companions, — all these are illustrations of what all of us would call hearty, healthy interest and activity. The boy scowling over an opaque problem in arithmetic, the college youth burning his trigonometry and burying its remains, the girl, with unconcealed disgust, impatiently shutting her book at participles and their uses, the child in tears and distress over a composition, the boys bursting forth from the schoolhouse with shouts of joy at their release from purgatory, — these give us the other side of the picture.

This contrast represents perhaps the traditional view of the difference between the boy, "creeping like snail unwillingly to school," and the boy in his native element, full of the energy of play or of self-chosen activity.

The principle of interest, now so much agitated as appropriate to studies, is designed to lay hold of this pleasurable activity for the school.

By interest, as commonly understood, we mean the natural bent or inclination of the mind to find satisfaction in a subject when it is properly presented. It is the natural attractiveness of the object of thought that holds the attention. A proper interest in the subject leads to a quiet, steady absorption of the mind in it, but it keeps the attention active and alert without undue excitement or partiality.

Interest is commonly spoken of by psychologists as a form of feeling, and belongs therefore to the emotional rather than to the intellectual life. It is distinguished from the other feelings, such as desire or longing or love, by being less passionate and intense. Interest may be thought also as less fluctuating and unsteady than more passionate feelings. At any rate, it is often satisfied with the simple study and contemplation without asking for possession.

Interest also contains the elements of ease, pleasure, and needed employment. That is, in learning something that awakens a proper interest there is greater ease and pleasure in the acquisition, and occupation with the object satisfies an inner need. Ziller says: "When interest has been properly developed it must always combine pleasure, facility, and the satisfaction of a need. We see again that in all exertions, power and pleasure are secured to interest. It does not feel the burden of difficulties, but often seems to sport with them."

One of the best writers on this topic, Ostermann, defines interest as a feeling of value, a sense or estimation of the worth of the knowledge gained.

"Upon a closer examination of the psychical process which underlies interest, it can be seen clearly that all valuation is originally a matter of feeling. Feeling is the faculty of valuation in the mind. Without feeling there is no consciousness of value. However much our opinions may differ as to the nature of feeling, in this point all will agree, that our mind, in every state of pleasure, experiences, or at least thinks that it experiences, some satisfactory advancement; in every state of pain some hindrance; and that it is unable to become conscious of these advancements or hindrances, as such, in any other way than through feeling. For no reason can be found why impressions should appear to the mind as valuable or as worthless, other than that they afford pleasure or pain. The mind experiences through them an advancement or a hindrance of its life."

In our eager pursuit of intellectual training and knowledge we sometimes forget that the interests or sensibilities awakened by knowledge are what give it personal significance to us. So long as a child has acquired no interest in history, he is like a stranger in a foreign land, no matter how many of its facts he has memorized. He is disposed to wonder what it is all for. It has no meaning for his life, but his faith in it depends upon the judgment of others, imposed upon him; that is, upon authority. But when his interest is once awakened in a subject, he feels its value and its relation to his needs. Without this judgment of value springing from his own perception of worth, he is almost certain to regard knowledge as an imposition, an impertinence, an intrusion.

This feeling of value is not utilitarian in any narrow sense, if in any sense at all. It appears in all the judgments which estimate worth — practical, moral, æsthetic, and ideal. It includes the whole range of values. This consideration of feeling, as judgment of value, suggests the close intimacy that should always exist between intellect and feeling.

The interest we have in mind is intrinsic, native to the subject, and springs up naturally when the mind is brought face to face with something attractive. It is natural, genuine, and spontaneous, not a forced, extraneous, or artificial phase of mental action. The things of sense in nature, and the people whom we see and read about, have a perennial and inexhaustible interest for us all. This interest may be attractive or repellent. It is among these objects that poets and artists find their material and inspiration. For the same reason the pictures drawn by the artist or poet have a charm that does not pass away. They select something concrete and individual; they clothe it with beauty and attractiveness; they give it some inherent quality that appeals to our admiration and love. It may call forth some æsthetic or moral judgment by virtue of its natural quality. Like luscious grapes, the objects presented to the thoughts of children may have an unquestioned quality that is desirable.

There are also bad interests which should be in some way avoided or neutralized. Parallel with those legitimate and worthy interests which run through all the plays, and studies, and life experiences, is a series of vicious interests, just as strong and influential if allowed to develop. Parallel with the home is the street life; parallel with the better companionships run the worse; and any one acquainted with school truants knows how strong are the interests centring in the truant life. Parallel with good books are the poor and the vicious, and so throughout the child's life. When we speak, therefore, of cultivating strong interests in children, we limit ourselves to those interests which conduce to the well-being of the children and of society.

It is customary also to speak of direct and indirect interest; by the former being meant the real thing, by the latter, a reflection or borrowed light. Direct interest is felt in the thing itself for its own sake, and indirect interest points to something else as the real source. A miser loves gold coins for their own sake, but most people love them only because of the things for which they may be exchanged. The poet loves the beauty and fragrance of flowers. The florist adds to this a mercenary interest. A snow shovel may have, ordinarily, no interest for us, but just when it is needed on a winter morning it is an object of much value. It is simply a means to an end, not a thing that excites interest for its own sake. This indirect interest may spring, not out of the object, but from some desire. A desire to restore one's health will produce a great interest in a health resort, like the Hot Springs, or in some method of treatment, or a vegetarian diet. The desire for wealth and business success will lead a merchant in the fur trade to take an interest in seals and seal fishing, in beavers and traps, — things which in themselves, perhaps, have never awakened his interest. The desire to gain a prize will cause a child to take a deep interest in lessons. But in all these cases the desire for something else precedes this so-called interest. Interest, indeed, in the thing itself, for its own sake, frequently is not present, or, if present at all, is merely borrowed from another source. The cultivation of such indirect or borrowed interests may be primarily the strengthening of certain inordinate desires or feelings, such as rivalry, pride, jealousy, ambition, reputation, self-love, and even much worse things. By appealing to the selfish pride and rivalry among children in getting lessons, hateful moral qualities may be startled into a rank growth in the very laudable effort to secure the highest intellectual results and discipline. Giving a prize for superiority often produces jealousy, unkindness, and deep-seated ill-will. These indirect interests, therefore, while they produce great energy of intellectual effort, may be sharply scrutinized by the teacher. They oftentimes serve as a blind to conceal most hateful qualities in the development of character. There are strong reasons which prompt us to think that most teachers, and even writers on education, have had chiefly these indirect interests in mind, and have, therefore, largely missed the whole significance of true interest as a factor in education.

There is, however, an important phase of all studies and exertions in which these indirect interests are vital to success, namely, when they follow in the path of strong and genuine interests. The interest a boy has in making a telephone transfers itself to all the batteries, wires, and difficulties met with in setting up a successful telephone. In all kinds of manual training where children make a sled, or bookcase, or trap, in which they are personally concerned, the interest transfers itself to the materials, problems, and irksome difficulties incident to a successful working out of the whole scheme. A boy reading Dana's "Two Years before the Mast" took great pains to study out in the appendix to Webster's Dictionary all the parts of a ship and the common nautical terms of the sailors. So strong was the interest in the story itself as to lead to the mastery of these otherwise uninteresting details.

There are many facts in each branch of study which, in themselves, excite little or no interest, just as there are many details in a man's business which, in themselves, are only tedious. All of these facts may acquire a secondary interest by close association with interesting things with which they are brought into relation. A railroad time-table, wholly dull in itself, as John Adams says, becomes very interesting to one about to take a long journey. William James says: "Any object not interesting in itself may become interesting through becoming associated with an object in which an interest already exists. The two associated objects grow, as it were, together: the interesting portion sheds its quality over the whole, and thus things not interesting in their own right borrow an interest which becomes as real and as strong as that of any natively interesting thing." For example, a man who has just purchased an orange grove in Florida becomes suddenly interested in the climate, soil, labor system, shipping facilities, and markets, things which, perhaps, were previously of little or no concern to him. In studying the story of Major Powell's descent of the Grand Cañon of the Colorado, the child becomes interested in the mountains and in the upper course of the river where the men first launched their boats on their dangerous journey. Before it was associated with this daring adventure, he had no interest in the upper Colorado. James says: "In mature life all the drudgery of a man's business or profession, intolerable in itself, is shot through with engrossing significance because he knows it to be associated with his personal fortunes." This indirect interest must, of course, play a very important part in all studies. Every study, however, should possess sufficient centres of interest around which these less attractive parts may be organized. To make a study consist wholly of this kind of lifeless material, would certainly make Jack a dull boy.

We should, however, discriminate sharply between this form of associate interests, and the fictitious interests produced by sugar-coating disagreeable tasks, by artificially amusing and entertaining the children.

The kind of interest which we think is so valuable for instruction is direct and intrinsic. It reaches down into those spontaneous and instinctive forces in child-life out of which all strong activity must spring. The story of Robinson Crusoe, for example, is planted down deep in these original impulses of childhood from which the current of efficient effort may be led off in many directions. Such a story is like the mountain reservoir on the upper course of an irrigating stream. In the season of cultivation its waters may be tapped, and many an arid field in the plains below made to rejoice with its refreshing waters. A boy or girl may read page after page of "Aladdin" or "Rip Van Winkle" while he will be dragged with slow and reluctant steps through an easier third reader or formal exercise-book. With children in the upper grammar grades or high school, the autobiography of Benjamin Franklin calls out a strong natural interest in the man and his fortunes, and opens up a great variety of instructive topics. Many people also in adult life will find it a remarkable stimulus to thought along many lines. A humming-bird or butterfly attract and appeal to us by their delicate beauty, and with a closer study reveal striking adaptations in nature. The cultivation of these direct interests in all valuable kinds of knowledge is the thing which has given deeper significance to the doctrine of interest. In all these cases the sources of all true interest are the chief things to be considered by the teacher, because they contain the motives which prompt to exertion.

Perhaps the chief source of misunderstanding and controversy in the whole discussion of interest is brought to light by the expression, "Making things interesting to children." This expression suggests a wholly erroneous point of view as to what is meant by true interest. No one would speak of trying to make sugar sweet. It is equally absurd to talk of making instruction interesting, although this is not quite so apparent. In the deeper sense, instruction should be interesting before the teacher lays his hands upon it. A ten-year-old boy does not need to have "Robinson Crusoe" made interesting. Give him the book and he and Crusoe will get along together without weariness. We do not say that all school work is so entrancing, but a very large part of what we are now teaching in the schools contains this element of real interest which does not have to be sugar-coated. Adams says: "Teachers are fond of talking about creating an interest, but this labor at least is spared them. They have not to create but only to direct interest." If interest consists chiefly in artificial devices for overcoming the dulness of studies, in perpetual efforts to make lessons easy and entertaining, the opponents of this theory are well justified. In characterizing the opponents of interest, John Dewey gives their point of view as follows: —

"Apart from the question of the future, continually to appeal even in childhood days to the principle of interest is eternally to excite, that is, distract, the child. Continuity of activity is destroyed. Everything is made play, amusement. This means over-stimulation; it means dissipation of energy. Will is never called into action at all. The reliance is upon external attractions and amusements. Everything is sugar-coated for the child, and he soon learns to turn from everything which is not artificially surrounded with diverting circumstances. The spoiled child who does only what he likes is the inevitable outcome of the theory of interest in education.

"The theory is intellectually as well as morally harmful. Attention is never directed to the essential and important facts. It is directed simply to the wrappings of attraction with which the facts are surrounded. If a fact is repulsive or uninteresting, it has to be faced in its own naked character sooner or later. Putting a fringe of fictitious interest around it does not bring the child any nearer to it than he was at the outset."

This point of view assumes that interest is really a fictitious thing; that it does not reach down into the inner substance and quality of the object studied. In fact the use of the word *fictitious* implies that the whole thing is a fraud, that real genuine interest in a subject of study is an unheard-of thing.

We often say that it is necessary to make a subject interesting so that it may be more palatable, more easily learned. This is the commonly accepted idea. It is a means of helping us to swallow a distasteful medicine, to cover up the real bitterness of the dose which is to do us good. There is a certain trickiness and deceit in this kind of an interest, and the child, as soon as he is able to reflect upon it, perceives that he has been fooled. We may call this a pseudo or false interest, interest so called, which needs to be excluded from the category of real interests. When we speak of teachers making a disagreeable lesson interesting, we are playing a game of jugglery. We are thinking of the devices by which the teacher conceals the emptiness and barrenness of the subject.

It is a kind of mockery to talk of interest in such cases. True interest corresponds exactly to the hearty appetite of a healthy child for wholesome food. It is awakened by the inherent quality of the subject and not by a thin whitewash of agreeable devices. If the main purpose of education were to get knowledge into the mind, and if knowledge, like medicine, had no relish for the young, educators, like physicians, might be justified in resorting to this device; but interest is one of the leading qualities which we wish to see permanently associated with knowledge, even after it is safely stored in the mind. If interest is there, future energy and activity will spring spontaneously out of the acquirements. The interest that is awakened in a subject because of its innate attractiveness, leaves those incentives which will ripen sooner or later into action. This kind of interest is direct, intrinsic, not simply receptive, but active and progressive. It is life-giving and is prompted by the objects themselves, just as the interest of boys is awakened by deeds of adventure and daring or by a journey into the woods.

It is inevitable that a teacher having this false notion of interest, that it consists not in bringing out the inner qualities of the subject, but is spicing and sugar-coating, in fun and jokes, and entertaining by-play, — it is inevitable, we say, that such a teacher will spoil the children with sweetmeats and herself fall a prey to unworthy motives and trivial devices.

It is not the purpose of such a serious thing as education to run the good ship aground upon the shoals of such shallow nonsense.

An equally serious blunder is made by us when we assume that it is our business to make instruction easy. It might better be said that it is the peculiar business of the teacher to make instruction difficult. Rousseau said that he wished some one would invent a method by which the process of learning might be made difficult, and practically it is true that teachers help the children too much. Unquestionably the greatest interest which children can feel in their studies is found when they shoulder their own tasks manfully and work their way through their own difficulties with the least amount of help. Self-activity is the fundamental basis of a strong interest. It should not be forgotten, however, that this implies aims which the children themselves are working out. Parents are often astonished at the amount of drudgery and hard work which children will encounter in carrying out some project which they themselves have conceived, of building a tree-house, or making a cave, or fixing up a play-ground. In practical life everywhere men will work their way through endless drudgery in order to achieve results which they have set up as desirable. If this kind of energy could be let loose in school studies, it would save the teacher a good deal of anxiety. We are well aware that boys and girls possess superabundant energy. The problem is how to release this energy along school lines. Many teachers make the fatal mistake of thinking that they must make the lessons easy and interesting. The result is a pitiful feebleness, flabbiness, and helplessness on the part of good stout boys and girls who are fully capable of doing problems twice as difficult. If necessary with these pampered youngsters, I would sacrifice something even of the principle of interest for the sake of bringing them up squarely against real difficulties, so as to convince them that the school is not the place to be helped into helplessness. This is a most serious problem for the majority of our teachers. They should resort to no end of devices to keep from helping the children and to teach them to rely upon themselves. Any one who supposes that he is increasing the interest of children in their school work by directly helping them over all their hard places, does not understand human nature in children. When they are interested in anything, they want to be left alone to work it out for themselves. It is only when they have been injudiciously helped, and have been dulled by lifeless instruction, that they lose interest and fall down in despair before every molehill. Of course there is another side to this question. It is the special business of the teacher to set up interesting problems demanding the strongest effort, and to see that the children are in possession of the essential facts and conditions which make it possible to reach a solution. In these preliminaries the teacher can put in his work to the greatest advantage, but when he has the children started in the right direction under right conditions, let him keep his hands off. The fact is the children will resent his interference, and his injudicious desire to help. It would not be difficult to multiply illustrations from every study showing that whenever children are once well interested in a problem they wish to be let alone to work it out for themselves. If it be a boy working at a difficult problem in percentage, or making a sled in the manual training, when he gets well started he desires nothing better than freedom and autonomy in his work. Perhaps the greatest opening toward better methods of instruction is in the direction of laying out in every subject the series of interesting problems, in proper order and relation, which boys and girls may then be led to encounter.

There is, then, a true philosophy in saying that the way to make things interesting to boys and girls is to make them difficult. What interest would there be in base-ball if it did not put the players under the necessity of exhibiting the greatest endurance, skill, and self-control?

The true doctrine of interest, therefore, has nothing in common with that idea of spicing the subjects so as to make them artificially interesting, nor with the other idea of making school work easy, lackadaisical, and nerveless. It is now generally felt among thoughtful teachers that the school has a greatly increased responsibility for a rigorous training in mastering difficulties. When most of the boys were brought up on farms they got this training at home, whether or not they did in school, but now in our towns and cities the only place where a great many boys and girls can be brought under severe discipline is the school, and interest in overcoming difficulties should be one of the chief agencies.

There is one other characteristic of true interest which we have reserved for special emphasis. The kind of interest which is most worth awakening in pupils is not only direct and intrinsic, but permanent. The best kind of knowledge is that which lays a permanent hold upon the affections. The best method of learning is that which opens up any field of study with a growing interest. The reason why in so many schools we are using such biographical stories in the early history work as the life of William Penn, of Columbus, of LaSalle, and of George Rogers Clark is that they are adapted to children of this age to arouse a strong and growing interest in American history. It is hoped that this will be intensified by later studies. Hawthorne's story of the "Golden Touch" embodies a simple classic truth in such transparent beauty that its reperusal is always a pleasure. In the same way a little child that has once observed the autumn woods and flowers, the birds and insects, with sympathy and delight, has laid in his memory the basis of a lasting pleasure which he may deepen and extend in all his future experience. To awaken a child's growing interest in any branch of knowledge is to accomplish much for his character and usefulness. An enduring interest in American history, for example, is valuable in the best sense, no matter what the method of instruction. Any companion or book that teaches us to observe the birds with growing interest and pleasure, has done what a teacher could scarcely do better. This kind of knowledge becomes a living generative culture influence. Knowledge which contains no springs of interest is dead, like faith divorced from works. Information and discipline may be gained in education without any lasting interest, but it is at the sacrifice of the better part. The one who uses such knowledge and discipline is only a machine. A Cambridge student, who had taken the best prizes and scholarships, said at the end of his university career: "I am at a loss to know what to do. I have already gained the best distinctions, and I can see but little to work for in the future." The child of four years who opens his eyes with unfeigned interest and surprised inquiry into the big world around him, has a better spirit than such a dead product of university training. But happily this is not the present spirit of our universities. The remarkable and characteristic idea in university life to-day is the spirit of investigation and scientific inquiry which it constantly awakens. We happen to live in a time when university teachers are trying to enlarge the bounds of human knowledge in every direction, to solve problems that have not been solved before. No matter what the subject, the real student soon becomes an explorer, an investigator, in fields of absorbing interest. The common school can scarcely do better than to receive this generous impulse into its work. Can our common studies be approached in this inquisitive spirit? Can growth in knowledge be made a progressive investigation? A true interest takes pleasure in acquired knowledge, and standing upon this vantage looks with inquiring purpose into new worlds. Children in our schools are sometimes made so dyspeptic that no knowledge has any relish. But the soul should grow strong, and healthy, and elastic upon the food it takes. If the teaching is such that the appetite becomes stronger, the mental digestion better, and if the spirit of interest and inquiry grows into a steady force, the best results may be expected.

It is pretty generally agreed to by thoughtful educators that in giving a child the broad foundations of education we should especially deepen the susceptibility and appreciation for it, that is, the feeling of the worth or power or beauty of knowledge. A universal receptivity, such as Rousseau requires of Émile, is a desideratum. Scarcely a better dowry can be bestowed upon a child through education than a desire for knowledge and an intelligent interest in all important branches of study. Herbart's many-sided interest is to strengthen and branch out from year to year during school life and become a permanent tendency or force in later years. No school can give even an approach to full and encyclopædic knowledge, but no school is so humble that it may not throw open the doors and present many a pleasing prospect into the fields of learning.

The problem before us is to find out the place of this genuine form of interest in a scheme of training. In recent years the doctrine of interest and its importance to children and teachers have been thrust upon the attention of all those concerned with education by a variety of important agencies. The scientific thinkers and leaders of the modern world, such as Huxley, Youmans, Agassiz, Tyndall, and others, followed by the whole host of scientific investigators and teachers, have demanded that the dull routine of formal and disciplinary studies in language, mathematics, spelling, and geography shall give place, in a large measure, to those interesting observations of plant and animal life, to simple experiments in physics and chemistry, to those excursions for the study of soil, rocks, clouds, and the natural phenomena of the seasons, winds, and the open sky, which appeal so powerfully to all children. The great scientific writers have spoken in no uncertain tones of the original power and educative influence of natural science phenomena, based upon the spontaneous and healthy interests of childhood.

Eminent writers on education like Comenius, Rousseau, Montaigne, Froebel, Milton, and Locke have scourged the dull routine of the school, and have demanded more interesting and life-giving materials of study. Philosophers like Herbart, Mill, Spencer, and Lotze have set forth in the strongest terms the value of this appeal to the emotional nature. Novelists like Dickens and George Eliot have criticised and caricatured the formal pedantry of the schoolmaster.

The enrichment of the school course with modern history, biography, literature, geography, natural science, and constructive work has brought a great quantity of lively instruction into common use.

A great many teachers also in primary and other grades have felt keenly the hopeless dulness and irksome drills of the old-fashioned schools. In consequence, they have searched out in story, in literature, and in nature study varied and abundant sources of natural interest, and have made large and successful use of these materials.

The school of Herbart and his successors went so far as to set up the doctrine of interest as a cardinal principle of good educative work, and laid out careful courses of study, giving scope to this doctrine.

As in the case of every new emphasis of an old principle, many teachers have seized upon it with avidity, and have committed no end of serious blunders in applying it to school studies. The disciplinary schoolmasters, and those who hold with them, have felt that a weak and sugary principle has been substituted for a strong and virile one in education. But not only the schoolmasters, in attempting to shield their practice, have set up the idea of discipline and rigor as opposed to interest and amusement; even eminent writers have sounded the alarm against the effeminate and enervating doctrine of interest.

The problem therefore which lies before us is to study out the real sources of children's interests and the true relation of the principle of interest to those long-recognized and well-established canons suggested by the familiar terms, acquisition of knowledge, intellectual discipline, attention, memory, imagination, development of will power, and growth in moral character. It may be necessary also to enter into some sort of friendly relations with those new arrivals on the educational camping ground, apperception and correlation. It is suggestive to note that in the whole catalogue of ideas which ancient and modern pedagogy have brought to the attention of teachers, the doctrine of interest is the only one which gives special emphasis to the emotional life. The older pedagogy gives a large place and importance to the intellect and the will, but the value of the feelings, of the emotional life, to the training of the child, has been admitted very slowly and grudgingly.

Assuming now, without argument, that there is such a thing as a true and genuine interest in the acquisition of knowledge, and that the multitude of writers who have emphasized this principle have not been mistaken, we may inquire what, by common consent, are regarded as the chief sources of right and wholesome interest. We may even go farther into the somewhat technical question of the chief phases or kinds which psychologists and philosophers have named in their efforts to classify interests. In this way we may get a sort of crude basis for the study of interest in its relation to the chief pedagogical concepts named above.

When a little girl three years old repeats with gusto the story of the death and burial of "Poor Cock Robin," or sings it to herself for her own amusement when put to bed, we may inquire first how and why she learned it, and secondly why she repeats it to herself. It is a poem of thirteen verses, and a grown person, new to this kind of literature, would be subjected to painful toil in learning it. Without tedious reflection or psychological analysis one is inclined to answer that she liked it, and that it was imprinted upon her memory without conscious effort. There was in the Mother Goose melody a rhythmic jingle and a simple dramatic story of persons which completely captured and continued to hold her interest.

With equal fluency and ready prattle she repeats the story of the "Walrus and the Carpenter," of "Old Mother Hubbard and her Dog," of "Simple Simon," of "Old King Cole," and other such diverting stories from "Mother Goose," and other sources. It is noticed also that a small boy seven years old, in the second grade, reads one of these Mother Goose stories with much intensity of interest. He bends to the task of spelling out and pronouncing new words with a courage and devotion that would please the elect. But if called upon to read an exercise in the second reader he might prove balky. Hugh Miller says: "During my sixth year I spelled my way through the Shorter Catechism, the Proverbs, and the New Testament, and then entered upon the highest form in the dame's school as a member of the Bible class. But all the while the process of learning had been a dark one, which I slowly mastered, in humble confidence in the awful wisdom of the schoolmistress, not knowing whither it tended; when at once my mind awoke to the meaning of the most delightful of all narratives — the story of Joseph. Was there ever such a discovery made before! I actually found out for myself that the art of reading is the art of finding stories in books; and from that moment reading became one of the most delightful of my amusements."

William James says: "A college athlete who remains a dunce at his books may amaze you by his knowledge of the records at various feats and games, and prove himself a walking dictionary of sporting statistics. The reason is, that he is constantly going over these things in his mind and comparing and making series of them." But if we ask ourselves why he makes these series and associations, and fails to master those more important series in his college text-books, we are compelled to answer that he is interested in sporting matters but not in the text-books. A little four-year-old girl, with bright red stockings and shoes, and a new dress, is pleased with the chance of going to Sunday-school, and when she returns she knows how the little girls were dressed, their bonnets, and shoes and stockings, and ribbons, and their red or blue cloaks. In the midst of her pleasurable excitements she may have picked up the words of the golden text. Liebig when a boy in the German Gymnasium was a dunce in Latin, but he worked up a laboratory and made such rapid, enthusiastic progress in chemistry and physics that, when about twenty-one years old, he astonished the savants in Paris by the originality of his scientific experiments and demonstrations.

A seven-year-old boy goes out with his aunt in the springtime on excursions to observe the wild birds, the first spring flowers, and the common weeds. It is delightful and almost pathetic to observe the pleasure with which he finds a spring blossom and stretches himself on the ground to see it more closely and to enjoy its beauty. At the close of the spring excursions, people are surprised at his knowledge of birds and flowers and weeds, and yet he is only an ordinary school urchin. It is said that the philosopher Kant on receiving a copy of Rousseau's "Émile" was so absorbed with its contents, that he did not go to bed nor take his usual meals till the book was finished.

There are not a few instances of boys who in early years have taken great delight in studying Latin. In youth Frederick August Wolf showed an astonishing love for Latin and Greek in the original, so that when he entered the university at Göttingen, at the age of about eighteen, he had little to learn from his masters. In the story of "Tom Brown at Rugby," little Arthur, Tom's protégé, was, on one occasion, so touched with feeling awakened by the Latin passage he was reading that he was unable to express his thoughts in words, and no doubt thousands of scholars and teachers, after having mastered the difficulties of grammars and vocabularies, have found most enthusiastic delight in the orations of Cicero, in Vergil's "Eneid," in Homer's "Odyssey," and Thucydides' history, in short, in the classic beauty and power in the ancient masters.

In the last fifty years particularly, the study of natural science in its various branches has awakened a boundless enthusiasm. In France and England, in Germany and in the United States, the scientific leaders and investigators have bubbled over with enthusiasm for their chosen pursuits. So great has been their interest and success in these fields that they have remodelled our courses of study from the primary through the university, have compelled the thinkers and philosophers to modify the old systems of thought, and have astonished everybody with marvellous inventions and discoveries.

But the enthusiasm of modern science experts is not a whit greater than was that of the classical scholars upon the revival of Latin and Greek learning throughout Europe four hundred years ago. This enthusiasm for the ancient classics produced a system of education throughout Europe which has controlled the universities and the scholarly world and even the secondary schools up to the present time. The gradual rise of the scientific spirit and the immense enthusiasm of those believing in modern science, history, and literature, give us the only force which has been able to compete, on equal terms, with the spirit of the ancient learning. This would seem to indicate that the marked epochs of educational history have found their origin and impulse in profound enthusiasms. A disciplinary schoolmaster, whose creed is bound tight to a dull routine, seems not to have dreamed of the spiritual enthusiasm of which his routine is a fossil survival. The examples given above may illustrate in a feeble way the variety of strong interests which people of different ages and dispositions have felt, and show that these interests are powerful agents in education.

Eminent thinkers have tried to give us a table of interests, a systematic grouping of these powerful motives of mental action. About a hundred years ago, Herbart tried to grasp the whole field of interests in two large categories, each with three subordinate classes. The first group of interests consists of those which are awakened by nature apart from man. This includes the whole realm of natural science with its great variety of branches of study. The second group includes the study of man in biography, history, literature, and all the social sciences. This grouping of the world about us into the two great fields, first of directly human affairs, and second of external objects and phenomena in nature, is a common and convenient classification among thinkers. It gives emphasis, for pedagogical purposes, to the great realities of experience as distinguished from the more formal branches of study. Among natural objects and phenomena three chief sources of lively interest are distinguished. The *empirical* which is stirred by the superficial variety, novelty, and attractiveness of things in nature. There is pleasure in observing the many faces and moods in nature. Between the years of childhood and old age there is scarcely a person who does not enjoy a walk or a ride in the open air, where the variety of plant, bird, animal, and landscape makes a pleasing panorama.

This is the chief source of interest for most people who travel for the pleasure of sight-seeing. *Speculative* interest springs from a deeper source and inquires into the relations and causal connections of phenomena. It is not satisfied with the simple play of variety, but seeks for the genesis and outcome of things. It traces out similarities and sequences, and detects law and unity in nature. In fact, it leads to science or classified knowledge. Even a child may be eager to know how a squirrel climbs a tree or cracks a nut, where it stores its winter food, when and how its nest is built, its manner of life in winter and summer; why it is that a mole can burrow underground; how it is possible for a fish to breathe in water. *Æsthetic* interest is awakened by what is beautiful, grand, and harmonious in nature or art. The first glance of a vast cathedral, or of great overhanging masses of rock in the mountains, oppresses us with a feeling of awe. The wings of an insect, with their delicate tracery and bright hues, are attractive and stir us with pleasure. The graceful ferns beside the brooks and moss-stained rocks suggest fairy-land.

Of equal strength with these interests which attach us to the things of nature are the interests of humanity. The concern felt for other persons in joy or sorrow is based upon our interest in them as individuals, and has been called the *sympathetic* interest. It is the basis of the strong bond of friendship. In it lies the charm of biography and the novel. Take away the personal interest we have in Ivanhoe, Quentin Durward, Ellen in the "Lady of the Lake," and other characters, and Scott's glory would quickly depart. What empty and spiritless annals would the life of Frederick the Great, Maria Theresa, Alexander, or Patrick Henry furnish! In nearly all fiction, dramatic literature, and biography, the personal interest is the magnet which controls thought and attention. *Social* interest is the regard for the good or evil fortune of societies and nations. Upon this depends our concern for the progress of liberty and the struggle for free institutions in England and other countries. On a smaller scale clubs, fraternities, and local societies of all kinds are based on the social interests. *Religious* interest, finally, reveals our consciousness of man's littleness and weakness and of God's providence. As Pestalozzi says, "God is the nearest resource of humanity." As individuals or nations pass away their fate lies in His hand.

The sources of interest, therefore, are varied and productive. Any one of the six is unlimited in extent and variety. Together they constitute a boundless field for a proper cultivation of the emotional as well as the intellectual nature of man. A study of these sources of genuine interest, and a partial view of their breadth and depth, reveals to teachers what our present school courses tend strongly to make them forget; namely, that the right kind of knowledge contains in itself the stimulus and the germs to great mental exertion. The dull drill upon grammar, arithmetic, reading, spelling, and writing, which are regarded as so important as to exclude almost everything else, has convinced many a child that school is veritably a dull place. And many a teacher is just as strongly convinced that keeping school is a dull and sleepy business. That these sources and materials of knowledge, arousing deep and lasting interests, are, above other things, adapted to children and to the schoolroom, is a truth worthy of all emphasis.

Herbart's general theory of interest, in addition to the six great classes described above, sets up a still more general comprehensive theory of interest by assuming a sort of affinity between the historical development of the race and the stages of mental development in children. Herbart believed that the ideal representation in the great literatures of the world of the more pronounced and valuable epochs of history would furnish the most appropriate thought material for the studies of children. The assumption was that this literature and history, when properly selected and arranged, would make a strong appeal to the instinctive interests and understanding of children at their successive periods of growth. This vague notion has been elaborated by the successors of Herbart into the theory of culture epochs, and has had a pronounced influence upon their courses of study, especially on the side of the historical, literary, and religious materials used.

In discussing Herbart's classification of interests we are reminded that his psychology and pedagogy have been called a schoolmaster's psychology and pedagogy, implying a certain scholastic and schoolmastery narrowness. There seems to be ground for this criticism, and yet it is, from one point of view, a praiseworthy weakness, if it means that Herbart was able to produce a psychology and pedagogy which had some adaptation to the schoolmaster's needs in the usual studies and management of his school. Some psychologists have not come so near as this to the schoolmaster. As compared with our more recent development of pedagogical thought, Herbart confines his ideas largely to the usual studies and discipline of the school. The whole group of interests involved in the motor activities, in doing, constructing, and in all the efforts at self-realization in material forms, as these have been brought to notice and emphasized in physiological psychology and in child study, — this whole group of interests was overlooked by Herbart, at least in his classification. Recent developments of psychology, child study, and of the social phases of school training have given an emphasis to the physical and motor life of children and to their relations with the world outside of the school to which Herbart gave much less attention. His emphasis of apperception brought the school studies into very close touch with the home and with all a child's experiences outside of school, but the emphasis was placed upon the school studies rather than upon a child's self-expressive activities.

Herbart agrees with the more recent psychologists in attributing much greater value to the emotional life. Child study has led to a more careful examination of children's interests and impulsive tendencies, and it is in the motor expression and development of these instinctive tendencies that much progress has been made in recent years.

It is believed that there is through childhood a successive rise of powerful instinctive interests, and that the education of children rests fundamentally upon the treatment and development of these interests; that is, that in each important stage of child life there is a predominant interest which characterizes that period. To seize each of these interests at the crest of the wave, at the time of its greatest intensity, and to utilize it for teaching purposes, thus lending its momentum to all the child's efforts, both receptive and expressive, is regarded as a sign of the highest tact and wisdom in the teacher.

John Dewey, in his recent book on "School and Society," goes a step farther, and puts these strong instinctive interests at work in social ways to bring the child into close relation with the natural world and with people and society about him. To a considerable extent he breaks loose from the traditional order of studies and tries to incorporate the typical industrial and social activities of the great world outside of the school into the school programme. One might say that the school is to epitomize the whole of our modern life in the effort to realize the child's life. Manual training in all its forms of wood work, drawing, basket making, weaving, sewing, cooking, and every variety of constructive work, and the typical processes in manufacturing, are absorbed into the school programme. This is with a view to their educative influence upon body and mind, but especially with an emphasis of their social significance, so as to put the child into practical sympathetic relation with the various conditions of our modern life. Dewey says: "The introduction of active occupations, of nature study, of elementary science, of art, of history; the relegation of the merely symbolic and formal to a secondary position; the change in the moral school atmosphere, in the relation of pupils and teachers — of discipline; the introduction of more active, expressive, and self-directing factors, — all these are not mere accidents, they are necessities of the larger social evolution. It remains but to organize all these factors, to appreciate them in their fulness of meaning, and to put the ideas and ideals involved in complete, uncompromising possession of our school system. To do this means to make each one of our schools an embryonic community life, active with types of occupations that reflect the life of the larger society, and permeated throughout with the spirit of art, history, and science.

When the school introduces and trains each child of society into membership within such a little community, saturating him with the spirit of service, and providing him with the instruments of effective self-direction, we shall have the deepest and best guarantee of a larger society which is worthy, lovely, and harmonious."

This whole superstructure of education rests upon a foundation of primordial, instinctive interests in children. Dewey says, "Now, keeping in mind these fourfold interests — the interest in conversation or communication, in inquiry or finding out things; in making things or construction, and in artistic expression — we may say they are the natural resources, the uninvested capital, upon the exercise of which depends the active growth of the child."

The efforts of Dr. Dewey, in his experimental school at the University of Chicago, to put this plan into operation and to test its difficulties have shown that it is a good working hypothesis upon which to determine the value and practicability of a profoundly interesting and important theory of education.

This discussion of the kinds and sources of interest, as conceived by Herbart, by recent child study, and by Dr. Dewey, shows first the strong and growing tendency to place the instinctive, spontaneous interests of childhood in the first place of importance in the scheme of education, and secondly, on the basis of these interests, to extend the scope of education to include the best culture materials which the history, literature, and science of the world furnish, and also the whole range of typical modern industries and social life. It is needless to say that this is a large problem for the schoolmaster, but it is difficult to see, in view of the needs of the citizen and man in modern life, how anything less can be demanded.

This leads us to a consideration of a phase of the doctrine of interest which has been much elaborated and emphasized by Herbart and his school; namely, the value of a *many-sided interest.* With these writers it means the sympathetic cultivation in every child of the six classes of interest in nature and in man already described, and a selection of studies and materials suited to this purpose. It is claimed that a mind stimulated and enriched with knowledge along all these lines is well-balanced and liberalized. It will be free from narrowness, bigotry, and prejudice, and inclined to be sympathetically active and public-spirited in all public and private affairs.

With this tendency to spread out over a wide and varied field of activities, the serious question has arisen whether such variety of studies and interests does not weaken and undermine the force of education. Many have felt that this multiplicity of interests must lead to scattering and superficial knowledge. With the emphasis of motor activities which is now made, many-sided interest would seem to point naturally to many-sided and distracting activity, to multiplicity of employments, to that character which in Yankee phrase is designated as Jack of all trades and master of none. It is often said that the old school course, in contrast to this, was very simple, very thorough and strong in its disciplinary value. If the educational stream is confined between narrow banks, it will show a deep and full current. If allowed to spread out over the marshes and plains, it becomes sluggish and brackish. Our course of study for the common schools in recent years has been largely added to and extended over the whole field of knowledge. History, geography, elementary science, music, and drawing have been added to the old reading, writing, arithmetic, and grammar; and now, in order to promote physical and motor activities of children, physical training and the various forms of manual construction and industrial life are demanded.

There is certainly a much greater variety of interesting studies. When, in addition to this, enthusiastic teachers desire to increase the quantity of knowledge in each branch, to present as many interesting facts as possible so as to get a comprehensive grasp of these subjects, we have unmistakably the disease called the *overloading* of the school course. Children have too much to learn. They become pack animals, instead of free spirits rejoicing in the fields of knowledge. We start out with many-sided interests, and end with universal apathy and dulness.

Mental vigor, after all, is worth more than a mind grown corpulent and lazy with excess of pabulum — overfed. The cultivation, therefore, of a many-sided interest ceases to be a blessing as soon as it becomes burdened with encyclopædic knowledge. In fact, the desire on the part of the teachers to make the knowledge of any subject complete and encyclopædic destroys all true interest.

And yet the advocates of a return to a narrow curriculum of two generations ago leave out of consideration some of the chief points in the argument. Our children are being educated to live and act and carry on business in a state of society radically different from that of our grandfathers, infinitely more complex and many-sided in its demands upon the citizen. A child educated according to the narrow ideals of the old-fashioned schools would be very poorly qualified, if qualified at all, to meet the demands of the twentieth century. An intelligent citizen is required to possess some definite knowledge of many difficult things which our grandfathers never heard of, such as international arbitration, the single tax, socialism, concentration of capital into trusts, public sanitation ; public franchises, trades unions ; organized labor, scientific farming, growing specialization in trades, the concentration of population in cities, etc.

The children of our age must be educated to meet the problems of the present and the future rather than those of two or three generations ago. In most cases the lives of adults are rendered narrow and cramped if their school education was limited to a narrow field. The particular trade or business so engrosses most people's time that their sympathies are checked and their appreciation of the varied duties and responsibilities of life is stunted. William James says that few people acquire new interests after the age of twenty-five. It is the business of the common schools to lay broad foundations, to awaken all those varieties of interest in the leading fields of knowledge which will serve to make him liberal-minded, public-spirited, of many-sided intelligence and sympathy in his adult life.

Unquestionably the lives of most people run in too narrow a channel. They fail to appreciate and enjoy many of the common and important things about them to which their eyes were not properly opened in early years. The school cannot carry a child very far into any field of knowledge. The best it can do is to open up the subject in an interesting way, to give elementary ideas about it, and to awaken a curiosity which will lead him in the future to seize upon further opportunities for extending his knowledge. In this sense every child in the public schools should be trained to a many-sided interest and curiosity. He has a right to claim those universal elements of culture in history, science, literature, music, art, physical development, and social training which may be considered the birthright of all children.

The trade school, the polytechnic institute, and the professional school can afford to specialize, to prepare for a narrow vocation. The common school, on the contrary, is preparing all children for general citizenship. The narrowing idea of a trade or calling should be kept away from the common school, and as far as possible varied interests in knowledge should be awakened in every child.

There is reason for believing that most children are capable of taking strong interest in many kinds of study. If the nascent periods of interest are not used, if the boy has no opportunity to hunt and fish, at the time in boyhood when this impulse is strong, the chances are that he will have no interest in hunting and fishing in later years. If he has no chance to read the story of "Sinbad the Sailor," of "Jack and the Bean-stalk," of "Rip Van Winkle," at the time in childhood when these would delight him, he will not only show no interest in them in later years, but he will be heard narrowly carping at them as nonsense.

The preference which some children show for some branches and dislike for others may be wholly due to peculiar early surroundings and influences, to neglect of cultivation at the proper time; or it may be due to good or poor teaching as much as to natural preferences and gifts. Our assumption is, therefore, that children are not so radically different from one another, not by nature so strongly bent toward one subject and disinclined toward another, as has been often supposed.

Every child has more or less sympathy and interest for companions and surrounding people in the home and neighborhood, and on this is based the interest of a child in story, biography, poem, drama, and history. So, also, the indifference to plant and animal life shown by many persons may be due to a lack of suitable suggestion and proper culture at an impressionable age. Children living in the country very frequently show little or no interest in the beauties of nature and the attractions of country life, but, if they are in companionship with their parents who take appreciative notice of such things, they quickly respond to these suggestions and develop a strong and abiding interest.

The dull and irksome drills, the unskilful approaches to school studies, the blunders of teachers in making subjects confused and uninteresting, will account in a large measure for the inveterate dislike which many children take for some of their studies. Generally speaking, therefore, it seems reasonable to assume that most children are capable of developing a many-sided interest in the leading educational subjects.

The culture of the many-sided interests is essential to a full development and perfection of the mental activities. It is easy to see that interest in any subject gives all thought upon it a greater vigor and intensity. Mental action in all directions is thus strengthened and vivified. To the educator it is always a pleasure to see the child so absorbed in his play, his construction of a house or boat, or in the reading of a book that his mind is oblivious of other things and it is difficult to gain his attention. On the other hand, mental life diminishes with the loss of interest, and even in fields of knowledge in which a man has displayed unusual mastery, a loss of interest is followed by a loss of energy. Excluding interest is like cutting off the circulation from a limb.

Perfect vigor of thought, which we aim at in education, is marked by strength along three lines, — the vigor of the individual ideas, the extent and variety of ideas under control, and the connection and harmony of ideas. It is one of the highest general aims of education to strengthen mental vigor in these directions. Many-sided interest is conducive to all three. Every thought that finds lodgement in the mind is toned up and strengthened by interest. It is also easier to retain and reproduce an idea that has been grasped with a full tide of feeling. An interest that has been developed along all leading lines of study has a proper breadth and comprehensiveness, and cannot be hampered and clogged by narrow restraints and prejudice. We admire a person not simply because he has a few clear and vigorous ideas, but also for the extent and variety of this sort of knowledge. Our admiration is checked when he shows ignorance or prejudice or lack of sympathy with important branches of study. Finally, the connecting links, the unity and harmony of the various kinds of knowledge, are a source of great interest, power, and utility. The tracing of causal and other connections between different studies, and the commanding insight that comes from proper association, are among the highest delights of learning. The connection and harmony of ideas is discussed under concentration or correlation.

The discussion of the sources of interest has led us into a profound problem, or triple problem: (1) to determine the succession of powerful instinctive interest in childhood; (2) to bring to light the best culture materials in the world's history for school use; (3) to discover the kinship between child and race development. The effort to classify interests has made clear the variety and depth of the sources from which true interest springs. Child study and the broader introduction of the principle of industrial and social activity have given us a deeper grasp of the principle of interest as self-activity.

The emphasis of many-sided interest gives us the conception of the well-balanced mind, the mind in proper equipoise, but stimulated to vigorous activity along all essential lines. These considerations lead us to conjecture that the emotional element which we call interest is an important ingredient of knowledge, that it depends much upon other important elements, and that it in turn greatly strengthens the other principles of mental life.

We will now take up the conditions which are favorable to interest, which are preliminary to its proper rise and development. First, we may mention the healthy, wholesome bodily condition. Physical health and vigor have often been emphasized as a condition preceding all forms of smooth mental action, but perhaps, in considering the emotional life, we may find it more directly conditioned by healthy bodily state than the intellectual activities. Ostermann says, "'*Mens sana in sano corpore*' holds not less true in regard to the emotional life than it does in regard to the intellect. The normal susceptibility of mind, and the development of a healthy emotional life greatly depend on the soundness of the body. Irregularities in the state of the health of the body are, as a rule, followed by diseased states of the feelings, by feelings of ill-temper, of overexcitement, fatigue, etc., and these hamper and disturb the free development of those very feelings and interests which instruction is to awaken. What the school, for its part, can contribute to the preservation of health is, before all things, this — that in its requirements of the pupil it observe the proper measure. Owing to the intimate correlation existing between the psychical and physical processes every excess of mental exertion is immediately followed by disturbance of the physical organism.

"To this may be added the bad effects resulting from want of exercise unavoidably connected with the overburdening of the schools — diminished breathing, disturbances in the circulation of the blood, indigestion, etc. — things that necessarily cause much physical and mental uneasiness. Woe to the school that by excessive demands becomes guilty of such deplorable results. It not only undermines the health of the children, but also deprives itself of the cream of its educational success. 'Cheerfulness,' says Jean Paul, 'is the sky under which everything thrives, poison excepted; it is, at once, the soil and the blossom of virtue. Joyfulness, that feeling of a wholly untrammelled nature and life, opens the child's mind to take in the universe, causes all youthful powers to rise like the rays of the morning sun, and gives strength, whereas strength is taken away by sadness.'

"Moreover, the school should bear in mind this: that only the healthy, fresh, and cheerful mind of the child will disclose itself to the ideal effects of instruction with the proper susceptibility and joyfulness, and only in such a mind will that lively interest in everything good, such as is required for the foundation of all virtue, grow and bear fruit. The school, therefore, in destroying that natural cheerfulness by excessive demands upon the working faculty of the child, obstructs its own way to the heart of the child and ties the arteries of all successful educational influence." "Interest in its Relation to Pedagogy." Ostermann. Pages 94–96.

The possibility of interesting children at any given age, or who stand at the same stage of mental growth, is made dependent upon the presentation of appropriate knowledge. The same child in different stages of his growth is interested in quite different things. We have already observed how important is the problem of discovering the successive rise of instinctive interests in childhood. It is gradually becoming established as a canon among teachers that we must find for each period materials which, in their very nature, have power to interest a child. Interest becomes thus a good test of the adaptability of knowledge. When any subject is brought to the attention of a child at the right age, in any suitable manner, it awakens in him a natural and lively feeling.

It is evident that certain kinds of knowledge are not adapted to a boy at the age of ten. He cares nothing about political science, or medicine, or statesmanship, or the history of literature. These things may be profoundly interesting to a person two or three times as old, but not to him. Other things, however, — the story of Ulysses, travel, animals, geography, and history, even arithmetic, — may be very attractive to a boy of ten. It becomes a matter of importance to select those studies and parts of studies for children, at their changing periods of growth, which are adapted to awaken and stimulate their minds. We shall be saved then from doing what the best educators have so frequently condemned; namely, when the child asks for bread give him a stone, or when he asks for fish give him a serpent.

The neglect to take cognizance of this principle of *interest* in laying out courses of study, and in the manner of presenting subjects, is certainly one of the gravest charges that ever can be brought against the schools. It is a sure sign that teachers do not know what it means to "put yourself in his place," to sympathize with children and feel their needs. The educational reformers who have had deepest insight into child-life, have given us clear and profound warnings. Rousseau says: "Study children, for be sure you do not understand them. Let childhood ripen in children. The wisest apply themselves to what it is important to men to know, without considering what children are in a condition to learn. They are always seeking the man in the child, without reflecting what he is before he can be a man."

It is easy to demand of teachers that they select suitable interesting lessons for each grade; but it is very difficult if not impossible at times to meet this requirement. It is worth the trouble to inquire whether it is possible or not to select subjects for school study which will prove essentially attractive and interesting from the age of six on. Occasionally a teacher is found who possesses the power, even with our present course of study, to hold the children steadily with interested attention. We know that fairy stories appeal directly to children in the first and second grade. They enjoy reproducing them, and drawing pictures by way of blackboard illustration. The working out of reading lessons in connection with these tales is spirited. At least reading a familiar story is a more interesting employment than working at the almost meaningless sentences of a chart or first reader. Even number work, when based upon the measurement of objects used in connection with the construction of boxes or as a help to accurate paper folding, is made to command the attention of little ones. They love to see and talk about pictures, plants, flowers, and animals. It requires probably as much skill to awaken and hold the interest in the first grade as in any of the higher grades, unless the older children have been thoroughly dulled by bad instruction and have fallen into fixed habits of listlessness.

On what principles is it possible to select both interesting and valuable materials for the successive grades? We will venture a partial answer to this difficult question. It has been known of old that the main interest of children must be attracted by what we may call the real knowledge subjects; that is, those dealing with objective things, such as animals, industries, plants, storms, and all sorts of natural objects and phenomena. All these things children can get at directly through their senses or through their imagination, which they are quick to employ. From some cause or other the native interests of children spring up and are vividly stimulated by these concrete and realistic things. As an immediate consequence of this, it is a fact well established by experience that children are more touched and stimulated by particular persons and objects in nature than by any general propositions or laws or classifications. They prefer seeing and examining a particular palm tree to hearing a general description of palms, no matter how fluent and graphic the description may be. They prefer a detailed account of Peter the Great when he worked as a ship's carpenter in Holland to any general description of his characteristics as a statesman and ruler. A narrative of some special deed of kindness, like that of Lincoln in the reprieve of the young soldier who was condemned to death for sleeping at his post, is more interesting and effective than a discourse on kindness and sympathy. Children feel a natural drawing toward definite persons and things and an indifference and repulsion toward generalities. They prefer the story to the moral. They are little materialists dwelling in a sense world or in a world of imagination, with very clear, definite, and pleasing pictures.

Stronger still than the interest in mere objects of any sort is the delight in those activities in which the boy works out his own problems and constructive tendencies, such as the building of a cave in imitation of Robinson Crusoe, or of a tree house, the construction of a telephonic connection with some neighbor boy, the making in the workshop of a writing-desk, with pigeon holes and a folding shelf, to be used in his own room at home, fashioning tepees and canoes and playing the Indian, or girls representing Cinderella in a dramatic scene, making a work-basket for the sewing room, etc. The surprising interest shown by children in the manual training work when they are allowed, under wise guidance and suggestion, to make the things which they of their own volition wish to use or give as presents, such as sleds, work benches, traps, desks, footstools, nail boxes, letter files, etc., is a fruitful suggestion to teachers.

It may not appear at first sight that these things bear closely on school work, but their close relation to many school and home needs, their use in illustrating topics in geography, history, and science, their training of the motor and constructive activities, and their encouragement of voluntary enterprise in children will recommend them more and more to the thoughtful teacher.

This ability to select materials of study adapted to interest children implies an intimate acquaintance with them, an appreciation of their likes and dispositions at given ages, of their games and chosen activities, and of things in which their preferences and desires centre.

This brings us to the third condition preliminary to interest, the previous experiences and acquired knowledge which the child employs as a basis of operations in acquiring any new experience, or, using a terminology which has recently come into vogue, the masses of apperceiving ideas which are necessary, not only to interest in a new subject, but to the understanding. It is now well understood that we do not acquire most of our knowledge directly, but through the mediation or active agency of previous knowledge and experience. We need only to refer to our discussion of apperception to remind ourselves how potent are these knowledges in seizing upon new experience.

Very much depends upon the emotional temper with which we approach any new topic. Oftentimes the mind of a child stubbornly balks at the first glance of a new subject or lesson, because the thing stands there so senseless and blank, because no connective interpretation shoots across from the old to the new, lighting it up with meaning and producing a glow of interested feeling. Instead of this the mind is flooded with a feeling of irritation and even anger. The child stands stock-still in his pouting grief, and it is necessary for the teacher, not to move forward, but first to extricate the victim from the slough of despond, to get back again on to solid ground, and then start out afresh with a new impulse. This is a jerking, wrenching, temper-ruining method of acquiring knowledge. We need less friction and a smoother, more exhilarating forward movement in learning. The instant pleasure with which a child grasps a new problem as a modified case of something already familiar, the mental leap into the new jungle with the conscious feeling that there is a light and open space just ahead, — this is the true mental attitude in learning. It is easily within the power of the teacher who understands the children and the subject, who can, by sympathy, put himself in the child's place and see the new subject with the child's experience, can touch those points of connection between new and old by which a child's interest and intelligence are simultaneously awakened. It is evident that interest plays like a swift shuttle back and forth between his inner self, his accumulated stock of notions, and the oncoming host of new ideas and experiences. But interest depends upon ideas and upon the intelligent connections established between them. Intelligence, however, can move scarcely an inch forward unless interest is close upon its heels or jogging its elbows.

It is in the thick of the conflict, in these successive crises of instruction, that the teacher needs skill in method. The study of apperception, in its multitudinous examples, illustrating always a simple common principle, will help him to get the right point of view, the sympathetic attitude, the keen perception for connections and interpretations, and especially an understanding of the emotional states, which, if properly aroused, furnish the lubricating oil which gives an unclogged movement to the mental machinery. Interest is greatly dependent upon the smooth process of apperception.

It is commonly stated that interest is dependent upon the will. When by a distinct exercise of will power we fix the attention upon some topic, even though at first it be uninteresting, the mind becomes preoccupied with it and interest is awakened. Even in a difficult problem in arithmetic, which the boy approaches with evident dislike, as soon as his mind becomes involved in its particulars, he acquires a certain degree of interest. The desire to solve its difficulties is awakened, and by the time he has worked out a correct result, he attains to a distinct feeling of gratification. This form of will effort by which the mind is turned, directed, and concentrated upon some new object of thought, whether it be interesting or not, gives us the well-known *voluntary attention.*

The relation of interest to voluntary attention is one of the most attractive and significant problems in pedagogy. William James says: "Whoever treats of interest, inevitably treats of attention, for to say that an object is interesting, is only another way of saying it excites attention. But in addition to the attention which any object already interesting or just becoming interesting claims, — passive attention or spontaneous attention, we may call it, — there is a more deliberate attention, — voluntary attention or attention with effort, as it is called, — which we can give to objects less interesting or uninteresting in themselves." People have been accustomed to suppose that the power of sustained attention was dependent upon this will effort, that steady attention to a subject is a result of a steady pressure of the will. James says further: "But a little introspective observation will show any one that voluntary attention cannot be continuously sustained — that it comes in beats. When we are studying an uninteresting subject, if our minds tend to wander, we have to bring back our attention every now and then by using distinct pulses of efforts, which revivify the topic for a moment; the mind then running on for a certain number of seconds or minutes with spontaneous interest, until again some intercurrent idea catches it and takes it off. Then the process of volitional recall must be repeated once more. Voluntary attention, in short, is only a momentary affair. The process, whatever it is, exhausts itself in the single act; and, unless the matter is then taken in hand by some trace of interest inherent in the subject, the mind fails to follow it at all. Voluntary attention is thus an instantaneous affair. You can claim it for your purposes in the schoolroom by commanding it in loud and imperious tones, and you can easily get it in this way. But unless the subject to which you call their attention has inherent power to interest the pupils, you will have got it for only a brief moment, and their minds will soon be wandering again. To keep them where you have called them you must make the subject too interesting for them to wander again." "Talks to Teachers and Students." William James. Pages 100–103.

From this statement we are able to see the function of the will in giving the first impulse to the act of attention, and, in case the attention relaxes, to bringing this voluntary effort to bear to drag the attention back again on to the right track. John Adams of Scotland says: "Attention, as the psychologists have it, is inhibition. We do not really direct our attention to this or that object; we simply call it off from other objects."

We can scarcely overestimate the power and importance of the will in thus giving the initiative to every important line of thought and effort, also in excluding unrelated topics, no matter how much they press for acceptance, and in bringing the mind back again to its duty whenever it shies off into by-paths.

We see, therefore, that there is a number of preliminaries and predispositions which condition the rise and continuance of the feeling of interest in school exercises. First is a wholesome, healthy, bodily status; second, knowledge selected for its adaptability to awaken spontaneous interest; third, the skilful use of familiar previous experiences, of the strong apperceiving masses of knowledge in the mind — this implies a sympathetic and expert method on the teacher's part; fourth, the will, which gives the first direction and impulse in the mental attack, and issues sharp commands from time to time in the call to pressing duty.

We are prepared now to ask, How does the feeling of interest influence and tell upon the other mental activities in the process of knowledge-getting?

In reading a poem like "The Lady of the Lake" or the speech of Edmund Burke on "Conciliation with America," we observe that any phrase or passage which strikes us with peculiar force and gives us distinct pleasure is remembered without effort. In reading the dramas of Shakespeare, or in seeing them represented on the stage, those parts which appeal most strongly to the emotions afterward come springing back into the memory, while any poem like Young's "Night Thoughts" or parts of Wordsworth's "Excursion," which one has read over without interest, fade out of thought before the page is finished. We have noticed before that a little child will often memorize a poem without conscious effort, because it is pleasing and delightful; but it is hardly necessary to multiply examples of such common experience. We may assume that a keen interest quickens the mental powers, and gives an intensity to mental effort which can be acquired in no other way. The most intense exertions of the will fail to bring an object into such cohesive touch with the memory as a quickening interest with no apparent effort of the will at all. William James suggests that the common notion that the genius is the man of unusual power in sustained will effort is a mistake. He says: "The minds of geniuses are full of copious and original associations. The subject of thought, once started, develops all sorts of consequences. The attention is led along one of these to another in the most interesting manner, and the attention never once tends to stray away. A genius is the man in whom we are the least likely to find the power of attending to anything insipid or distasteful in itself. He breaks his engagements, neglects his family duties incorrigibly, because he is powerless to turn his attention down and back from those more interesting trains of imagery with which his genius constantly occupies his mind."

In order to understand the relation of interest to the whole mind's action in acquiring knowledge, it is necessary to examine closely the relation of interest to attention. Some distinguished psychologists, like Stumph, have claimed that interest and attention are identical, and the relation between them is certainly so close that the sharpest thinkers have had some difficulty in distinguishing between them. G. T. Stout says, as quoted by Adams, "The coincidence of interest and attention is simply due to the fact that interest, as actually felt at any moment, is nothing but attention itself considered in its hedonic aspect." In the passage previously quoted from James, we noticed that the action of the will is instantaneous, but not persistent and continuous, and that even with voluntary attention interest must seize and carry the thought forward, or attention wanders and ceases. In the case of involuntary attention the act of attending is maintained throughout by interest. It may be clearly seen, therefore, that the feeling of interest is really the energy that supports attention throughout. Adams says: "Interest may be said to hold the same relation to involuntary attention that the will holds to voluntary. In involuntary attention the object plays the leading part; in voluntary attention, the soul." Again he says, "In any given state of attention the less the interest, the greater the amount of will power necessary to maintain it."

The maintenance of attention by direct will power is a consciously heavy strain. The maintenance of attention by the force of interest is exhilarating, and almost free from friction and strain. If it is a question of economy and of avoidance of wear and tear in mental action, the learning of a lesson with interest is far superior to the excessive strain of sheer will effort.

But if the mental machinery described above is correct, if the continued process of learning, both in the voluntary attention and in the involuntary, demands the steady support of interest, if James is right in saying that voluntary attention is only instantaneous, then the learning of a thing by sheer will power unattended by interest is impossible.

It seems that psychologists, and especially pedagogical thinkers, until more recently, have attributed to the will too wide and constant a range of influence, have made other forms of mental action merely tributary to it, simply instruments which it used, such, for example, as attention, memory, imagination, judgment, and reason. In this way the will has been loaded up with too much responsibility. There has been a failure to analyze sharply the helpful relations of association of ideas, of the emotional life, of apperception to the will. We have failed to see that by giving proper importance to these other mental functions sheer will could be relieved of a large part of its heavy burden, and the whole mental machinery be made to move with greater economy, ease, and effectiveness.

If the strong psychological thinkers of the present time are right in their interpretation of these mental activities in their relation to the will, we may safely say that the healthy mechanism of the mind will do three-fourths of the work which has been usually attributed to pure will.

What do we mean by saying that the machinery of the mind will perform this work and relieve the heavy irksome strain? Consider again the idea of attention. Formerly it was conceived as a pointed instrument with the steady force of will behind it, driving it through difficulties. Now that the emotional life has been brought into significance, this pointed instrument is impelled by the quiet steady force of interest. The strength of this mechanism is better understood by considering the association of ideas and apperception. We know that the will cannot control the memory at its pleasure, but that memory is determined by the habitual lines of association previously formed. The will cannot command these mental resources arbitrarily, summoning them at random or leaving them undisturbed as it pleases. It must follow the established habits of association. When the will has once centred attention upon an idea, swiftly this idea leads on to others in an associated series. Interest is awakened, and the attention is carried captive so long as the movement continues to draw new objects into view with their attending interests, and all this without the voluntary act of the will. This is, in part, what we mean by the mental mechanism, and by far the greater part of the work is done without the presence of the will. A somewhat similar machinery of mental action appears in the process of apperception with its shuttlelike inter-action between the old and the new ideas, with the constant awakening of feeling and strengthening of attention.

James says in his chapter on association of ideas: "Your pupils, whatever else they are, are at any rate little pieces of associating machinery. Their education consists in the organizing within them of determinate tendencies to associate one thing with another," etc. "Those laws (of association) run the mind; interest shifting hither and thither deflects it, and attention, as we shall later see, steers it and keeps it from too zigzag a course."

If our arguments are correctly based, we are led to draw the conclusion that interest, when present, intensifies mental effort and contributes generously to memory, that it is such a close helper to attention that some psychologists have identified it with attention. In this identification, or lack of close analyses, the importance of interest as a factor has been overlooked. Interest, like Siegfried, in the old myth, has been left out of the count. It will be remembered that King Günther, in his contest with Brunhilde, had the support of the invisible Siegfried at his side, and it was Siegfried's strength that carried the king to easy victory. King Günther, therefore, received the credit for success in the contests, though Siegfried had done the work. Likewise, will has secured the credit which was really due to this unrecognized force of interest. We conclude further that the extravagant influence and autonomy of the will, its overwhelming duties and functions, should be distributed to those appropriate parts of the mental machinery which can do them with much greater ease and less friction. There was a time when all the functions of government were centred in an autocratic sovereign, but with growth and improvement in government these functions have been distributed to those coördinate divisions which we call executive, legislative, and judicial, and are better performed by such a constitutional machinery. In an analogous way, we may believe that the all-dominant influence of the will in all the lesser details of mental action is beginning to yield its sway to those coördinate branches of the mental organism which are now seen to have a well-regulated machinery of their own, better adapted than the will to the performance of these functions.

We may summarize the positive value of interest in its relation to other mental states as follows: Interest is the feeling side of attention, and so energizes attention as to produce the most efficient memory work. Involuntary attention is wholly dependent upon interest. Little children learn easily by involuntary attention, but have almost no power of voluntary attention. Even in the voluntary attention, interest sustains mental action between the longer pauses left by the instantaneous pulses of will effort. The will, therefore, depends for smoothness and effectiveness upon the machinery of the mind supplied by interest and the association of ideas.

Having discussed the conditions which are favorable to interest, and on the other hand the reënforcement which interest brings to attention, memory, and will, we are prepared to grapple with that serious and oft-debated question, how to secure strong and steady will effort in encountering difficulties, how to train children to meet disagreeable and irksome tasks. There seems to be no difference of opinion among writers and teachers as to the result to be desired and attained. Not even the extreme advocates of pleasant and attractive modes of instruction would have the hardihood to object to a vigorous and severe discipline which hardens the mind to meet difficulties. The hardening process, by which the mind is steeled to encounter disagreeable and irksome tasks, has been a favorite dogma with schoolmasters for so many generations, and has been so influential in determining the course of study, that we shall not easily disturb its monopoly. The favorite doctrine of formal discipline also has been behind all the schoolmaster's work, sustaining every demand for hardship and rigor. Moreover, the character of the studies selected for children made it impossible to support any doctrine of interest and stick to the school programme. Even as recent a writer as William James says: "The greater part of schoolroom work, you say, must, in the nature of things, always be repulsive. To face uninteresting drudgery, is a good part of life's work. Why seek to eliminate it from the schoolroom or minimize the sterner law?" Then for himself he says: "It is certain that most schoolroom work, till it has become habitual and automatic, is repulsive, and cannot be done without voluntarily jerking back the attention to it every now and then. This is inevitable, let the teacher do what he will. It flows from the inherent nature of the subject and of the learning mind."

This is an astonishing statement, but one which many a schoolmaster may be found to sanction. To one who has been accustomed to observe the rapt attention and pleasure with which many little children in the first and second grades follow the reading exercises (one of the most difficult problems of primary work) this statement of Professor James may seem overdrawn. Even with such schools and courses of study as we now have, it is not unusual to find an intermediate or grammar school class thoroughly interested in the most vigorous work in mental arithmetic. We have even seen a skilful grammar teacher in the eighth grade with an enthusiastic class, attentive and thinking well, in the study of adjectives or modifiers of the verb, not because the teacher invented spicy jokes, but because she got them interested in the meaning and grammatical relations. Most of the geography topics now taught in a considerable number of our schools are followed and mastered by the children with evident pleasure. They are full of interesting and instructive material suited to the age and comprehension of the children. The biographical stories now taught in good schools in intermediate grades are delightfully instructive, whether handled orally by the teacher or read by the children, and the more advanced historical work in the grades is often studied in a spirited, appreciative way.

The study of our best American and English classics as reading lessons in all grades above the primary, has worked out in many schools such satisfactory and pleasing results with children that the whole body of thoughtful teachers has been encouraged and led to believe that we have found an abundant and rich material of study upon which the best sympathetic, emotional life of the children can be strongly cultivated. High ideals both moral and æsthetic are formed, together with a heartfelt interest in such choice things as "The Village Blacksmith," "Vision of Sir Launfal," "The Great Stone Face," "Snow Bound," "The Lady of the Lake," "Evangeline," "The Pied Piper of Hamelin," "Robinson Crusoe," "Beauty and the Beast," the Bible stories, "The Wonder Book," "Arabian Nights," etc. Many of the science lessons now taught in the primary schools and upward are all that can be desired in the way of pleasing and satisfactory results. In this field the only questions that now trouble us are how to select the best topics and how to equip ourselves as teachers with abundant and concrete knowledge and to acquire a skilful method of handling the interesting material. We are not so irreverent as to say that nature study with children is for the most part essentially repulsive.

In going into a manual training room, where children were engaged in making things of some significance and worth to themselves, many an old school superintendent has been astonished at the complete absorption of the workers in their different tasks. Any one must be doubly blind who would say these are "dumb driven cattle" plodding away at their repulsive tasks. The fact is, that Dr. James is so delightfully interesting as a lecturer and writer that he is a positive and convincing illustration of the opposite theory. Under his luminous treatment, even as supposedly dull a subject as the application of psychology to pedagogy coruscates with flashing elements of intrinsic interest. Dr. James is not a pessimist, and the passages above quoted are out of harmony with numerous passages that could be quoted from his book as well as with the general tone of his whole treatment.

But this striking statement that "most school work, until it has become habitual and automatic, is repulsive" is the platform or rather the unshakable foundation (because a platform sometimes can be broken down) upon which that large body of teachers stand with whom interest is identical with "soft pedagogy," as Dr. James calls it, and who do not believe that the school studies have any considerable amount of intrinsic interest for children.

The phrase, "until it has become habitual and automatic," suggests plainly the difference in point of view between the two schools. First master the studies of the school till they become habitual and automatic, then they will cease to be repulsive. This means practically the whole work of the school. Those who believe in the doctrine of interest think that the highest satisfaction that children can know is in the very process of acquiring and mastering their studies. The school subjects themselves, if properly selected and approached, have inherent power to attract and interest the children. The mediæval point of view is well illustrated by Latin study. No one would have the hardihood to claim that boys studying Latin vocabularies, rules, and syntax, would find much interest the first two or three years. But when they have mastered the grammar and vocabularies and can read the simpler authors easily (Latin having become habitual and automatic), they begin to catch the spirit and power of the author and become interested.

Does the theory of Latin study of three hundred years ago, by which children must spend three or four years in wearisome toil, unrelieved by interest, before reaching any easement in their work — does this theory apply to our modern school course? On the contrary, children coming into the school at six years with a knowledge of the English language, are introduced at once to many of the choicest stories and poems of English literature. From the very beginning of the first grade they are brought face to face with flowers and insects, with the blossoming trees, singing birds, and with many other equally attractive objects in nature. They are set to work at simple crude blackboard drawings and constructive effort in paper folding, weaving mats, scissor work, clay moulding, house building, etc., which gives them happy educative employment. Even the so-called formal exercises of learning to read, write, and spell, are relieved by simple and interesting stories and games, which derive some of the joyful spirit from contact with thought matter of real worth. In our better schools we are as far away from the dull mechanical exercises of one or two generations ago as the steam engine is distant from the stage-coach.

Many schoolmasters and book-makers have been so enamored of the doctrine of hardship and distress in learning, that they have deemed it one of their highest functions to invent artificial difficulties, there not being sufficient of these in the natural course of school affairs. One of the German writers, as quoted by Paulsen, says that one of the peculiar merits in the study of Latin as taught in his time was, that it was extremely difficult, so much so, indeed, that the boy in his later life would never find such difficulties to meet, and if he had mastered his Latin, it was certain that he could master any lesser difficulties that he would later encounter.

But any one who has considered the vast stretch and variety of studies opening up before every child, and of the great number of inherent and unavoidable difficulties which beset his course in every study, will abandon forever the idea of inventing educational hardships and conundrums. On this point James says: "The teacher, therefore, need never concern himself about inventing occasions where effort must be called into play. Let him still awaken whatever sources of interest in the subject he can by stirring up connections between it and the pupil's nature, whether in the line of theoretic curiosity, of interest, or of pugnacious impulse. The laws of mind will then bring pulses of effort into play to keep the pupil exercised in the direction of the subject."

Our great problem in teaching is not to invent difficulties but to find out the best ways for the child to overcome them. We wish him to employ his knowledge, his interest, his will-power, in short, all his mental machinery, in a strong and unremitting effort to master difficulties. We are inclined to say that the best way to do this is to reduce friction to a minimum. It has been the effort of machinists during years and centuries of progress, by every device which their ingenuity and skill could discover, to reduce friction by means of the smoothest adjustment of axles, lubricating oils, smooth and level tracks, and latterly by the wonderful ball-bearing devices. In other words, the machinists have done their utmost to overcome the difficulties in using the materials in nature by the most skilful use of nature's forces and laws. It is difficult to see why the still more delicate machinery of the mind should not be allowed to operate upon the same principle, namely, to overcome necessary difficulties by the least expenditure of effort, or, still better, to allow the various parts of the mental machinery to work together in accordance with the laws of this mechanism with the least friction and strain. This seems to be not only scientifically correct but practically desirable; for nowadays there is no limit to the difficulties which the mind should be brought to overcome. The greatest economy of effort, therefore, is desirable.

It has been claimed by the advocates of interest that it is the greatest friction-reducing element in giving smoothness and certainty to the efforts of the will. The opponents of interest have held to the precisely opposite view, namely, that interest undermines will. Adams says: "We find that so far from enervating the pupil, the principle of interest braces him up to endure all manner of drudgery and hard work," and he supports this view with many apt illustrations. James says: "In real life our memory is always used in the service of some interest. We remember things which we care for or which are associated with things which we care for;" and again, "This preponderance of interest, of passion, in determining the results of a human being's working life obtains throughout." Ostermann says: "The fact that the whole range of the associative process, as well as attention and retentiveness of the memory, and indeed, all spontaneous and happy devotion to school work, is dependent upon interest, makes it evident that interest is of special significance for the intellectual results of school instruction. At the same time the fact that all the motives of conscious effort and volition depend on interest, causes interest to assume, from an educational standpoint, the significance of a cardinal concept of pedagogy, of a fundamental principle on whose proper recognition depends more than upon anything else the educational success of school instruction as well as the success of home training. In whatever direction the predominating interests of man incline, thither also tend with psychological necessity his striving and volition."

The objections of the opponents to the theory of interest seem to lie mainly in the assumption that interest is fitful, emotional, unreliable, and even misleading. Instead of supporting a good will, it often runs directly counter to it and interferes with and weakens the will effort. It seems to us that the best way to solve this difficulty is to yoke up interest and will together, and let them both pull in the same direction. One of the strongest arguments on this point is that of John Dewey in his essay "Interest as related to Will," in which he claims that will effort divorced from interest splits and weakens attention. He says: "The theory of effort, as already stated, means a virtual division of attention and the corresponding disintegration of character, intellectually and morally. The great fallacy of the so-called effort theory is, that it identifies the exercise and training of will with certain external activities and certain external results. It is supposed, because a child is occupied with some outward result, and because he succeeds in exhibiting the required product, that he is really putting forth will, and that definite intellectual and moral habits are in process of formation. But as a matter of fact, the moral exercise of the will is not found in the external assumption of any posture, and the formation of moral habit cannot be identified with the ability to show up results at the demand of another. The exercise of the will is manifest in the direction of attention, and depends upon the spirit, the motive, the disposition, in which the work is carried on.

"The child may be externally entirely occupied with mastering the multiplication table, and be able to reproduce that table when asked to do so by his teacher. The teacher may congratulate himself that the child has been so exercising his will power as to be forming right intellectual and moral habits. Not so, unless moral habit be identified with this ability to show certain results when required. The question of moral training has not been touched until we know what the child has been internally occupied with, what the preponderating direction of his attention, his feelings, his disposition, has been while engaged upon this task. If the task has appealed to him merely as a task, it is as certain, psychologically, as the law of action and reaction, physically, that the child is simply engaged in acquiring the habit of divided attention; that he is getting the ability to direct eye and ear, lips and mouth, to what is present before him in such a way as to impress those things upon his memory, while at the same time getting his mental imagery free to work upon matters of real interest to him.

"No account of the actual moral training secured is adequate unless it recognizes the division of attention into which the child is being educated, and faces the question of what the moral worth of such a division may be. External mechanical attention to a task conceived as a task, is the inevitable correlate of an internal mind-wandering along the lines of the pleasurable.

"The spontaneous power of the child, his demand for realization of his own impulses, cannot by any possibility be suppressed. If the external conditions are such that the child cannot put his spontaneous activity into the work to be done, if he finds that he cannot express himself in that, he learns in a most miraculous way the exact amount of attention that has to be given to this external material to satisfy the requirements of the teacher, while saving up the rest of his mental powers for following out lines of imagery that appeal to him. I do not say that there is absolutely no moral training involved in forming these habits of external attention, but I do say that there is a question of moral import involved in the formation of the habits of internal inattention."

The friends of the doctrine of interest, therefore, not only subscribe to the notion of severe effort and exertion, but, wherever difficulties are to be met, they demand a greater concentration of will energy, and intellectual effort, than that obtained by the sheer exercise of will. We need a force superadded to the will which will lead children to exert themselves with greater energy when encountering disagreeable tasks. There are places in every subject where work is felt as a burden rather than a pleasure; but the interest and energy developed, the farther-reaching aims and motives, which make their appeal to the child in the more attractive parts of the subject, will carry him through the swamps and mires at a speedier rate.

In opposition to such a lively and humane treatment, with its motive-producing stimulus, a dry and dull routine has often been praised as the proper discipline of the mind and especially of the will. Ziller says: "It was a mistake to find in the simple pressure of difficulties a source of culture, for it is the opposite of culture. It was a mistake to call the pressure of effort, the feeling of burden and pain, a source of proper will training, simply because will power and firmness of character are thus secured and preserved to youth. Pedagogical efforts looking toward a lightening and enlivening of instruction should not have been answered by an appeal to severe methods, to strict dry and dull learning, that made no attempt to adapt itself to the natural movement of the child's mind."

Not those studies which are driest, dullest, and most disagreeable, unrelieved by interesting points of contact with the child's inner self, should be selected upon which to awaken the mental forces, but rather those studies which naturally arouse his interest and prompt him to a lively spontaneous exercise of his powers. For children of the third and fourth grades to read and narrate the story of the Golden Fleece, is a more suitable exercise than to memorize the one hundred and nineteenth psalm or the catechism.

Interest as a support to the will, and even as a will stimulus, has peculiar advantages. It is not, indeed, desired that chance inclinations and feelings shall take possession of the mind, especially not the disorderly and momentary impulses. The worthier purposes and impulses should be brought under the immediate service of the will, and be allowed to execute its behests. The importance of awakening interest as a basis of will cultivation is found in the favorable mental state induced by interest as a preliminary and attendant to action along the best lines. Interest is a quiet, steady undertone of feeling which brings everything into readiness for action, clears the deck, so to speak, and even begins and vigorously supports the attack. It would be a vast help to many boys and girls if the irksomeness of study in arithmetic, history, grammar, etc., which is often so fatal to will energy, could give way to the spur of interest; and when the wheels are once set in motion, progress would not only begin but be sustained by interest. It would be well if every study and lesson could arouse such a steady interest. It would be in many cases like lubricating oil poured upon dry and creaking axles. Knowledge would then have a flavor to it, and would be more than a consumption of certain facts and formulas coldly turned over to the memory machine. The child's own personality must become entangled in the facts and ideas acquired. There should be a sort of affinity established between the child's soul and the information he gains. At every step the sympathy and life experiences from without the school should be intertwined with school acquisitions. All, then, would be woven together and permeated by feeling. We forget that the feelings or sensibilities awakened by knowledge are what give it personal significance to us and lead on to action.

The greater the amount of this kind of motive-producing knowledge, which lays tribute on the child's inner self, what Dewey calls "the spontaneous power of the child, his demand for the realization of his own impulses," the stronger and steadier may we expect his exercise of will under difficulties and hardships to be.

It is also true that a proper interest is a protection against the desires, disorderly impulses, and passions. One of the chief ends of education is to bring the inclinations and importunate desires under mastery, to establish a counterpoise to them by the steady and persistent forces of education. A many-sided interest, cultivated along the chief paths of knowledge, implies such mental vigor and such preoccupation with worthy subjects as naturally to discourage unworthy desires. James shows that this predominance of the better feelings and interests is secured partly by the inhibition which the higher feelings exercise over the lower, and partly by a direct cultivation of the higher feelings and neglect of the lower.

Locke says, self-restraint, the mastery over one's inclinations, is the foundation of virtue. "He that has found a way how to keep a child's spirit easy, active, and free, and yet, at the same time, to restrain him from many things he has a mind to, and to draw him to things that are uneasy to him; he, I say, that knows how to reconcile these seeming contradictions, has, in my opinion, got the true secret of education."

The solution of this great problem lies not in eliminating and ignoring either the agreeable or the disagreeable features of training, neither in avoiding the difficulties nor in sacrificing the pleasures of study, but in arousing the motives and interests which will assist the will, giving impetus and strength in the direction in which it turns mental action. How is the teacher to approach and influence the will of the child so that he may acquire self-mastery? Is it by supposing that the child has a will already developed and strong enough to push through all obstacles? On the contrary, must not the teacher put incentives in the path of the pupil, cultivate higher motives and feelings, which will prompt him to self-denial, and assist the will in mastering lower forms of impulse?

In summing up the argument as to how we may develop that strength of character by which irksome and disagreeable tasks are boldly faced and overcome, we may say that it is not by an appeal to sheer will, but by gradually cultivating not only the will but all those intellectual and emotional habits upon which the efficiency of the will depends. In order that the mind as a whole act with the least friction and strain, feeling, intellect, and will must act in unison. Where, on the contrary, will and feeling pull in opposite directions, the force of attention is divided, mental effort weakened, and moral character disintegrated. Again, the cultivation of wholesome and hearty interests is a protection against all the lower forms of feeling and impulse. The experience of many teachers in our schools to-day goes to prove that even our present school studies have strong and varied sources of interest which are of the greatest value in encouraging children to master their problems.

CHAPTER IV

CORRELATION

By correlation is meant such a connection between the parts of each study and such a spinning of relations and connecting links between different sciences, that unity may spring out of the variety of knowledge. History, for example, is a series and collocation of facts explainable on the basis of cause and effect, a development. On the other hand, history is intimately related to geography, language, natural science, literature, and mathematics. It would be impossible to draw real history out by the roots without drawing all other studies out bodily with it.

Correlation is so bound up with the idea of character-forming that it includes more than school studies. It lays hold of home influences, and all the experiences of life outside of school, and brings them into the daily service of school studies. It is just as important to bind up home experience with geography, arithmetic, language, and other studies, as it is to see the connection between geography and history. In the end, all the knowledge and experience gained by a person at home, at school, and elsewhere, should be classified and related, and each part brought into its right associations with other parts.

Nor is it simply a question of throwing the varied sorts of knowledge into a network of crossing and interwoven series, so that the person may have ready access along various lines to all his knowledge stores. Correlation draws the feelings and the will equally into its circle of operations. To imagine a character without feeling and will would be like thinking of a watch without a mainspring. All knowledge properly taught generates feeling. The will is steadily laying out, during the formative period of education, the highways of its future activities. Habits of willing are formed along the lines of associated thought and feeling. The more feeling and will are enlisted through all the avenues of study and experience, the more permanent is their influence upon character.

The opposite of correlation is the isolation, the strict separation, of studies, and the neglect of the connecting links between them. Up to the present time the distinct isolation of the branches of learning has been the rule, and attempts at closer articulation of different studies have been exceptional. In a great many schools at present children are given half a dozen or more recitations in a single day, almost wholly distinct and unrelated to one another; and even if relations exist, they are left unnoticed. Herbart says: "I cannot refrain from wondering what sort of a process is being worked out in the heads of schoolboys who, in a single forenoon, are driven through a series of heterogeneous lessons, each one of which, on the following day, at the regular tap of the bell, is repeated and continued. Is it expected that these boys will bring into relation with one another and with the thoughts of the playground the different threads of thought there spun? There are educators and teachers who, with marvellous confidence, presuppose just this, and in consequence trouble themselves no further."

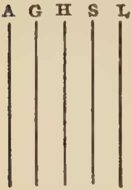
Correlation seeks to overcome the present unconnectedness of studies; it lays stress upon relations and seeks to enlarge the range of a child's thoughtfulness and rational survey, his self-activity and insight, by so planning and laying out the course of study that the sciences everywhere may be brought into more vital juxtaposition, that the child's knowledge may be unified and his practical power over it increased.

In the discussion of this subject different terms have been employed to express different degrees of emphasis upon the idea of relations, such as coördination, correlation, and concentration.

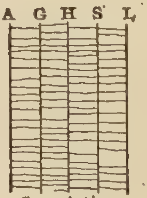
Coördination of studies implies the setting up of distinct and independent branches of study of equal rank. It is an emphasis of the equality of studies rather than of the interrelations. In his Jacksonville paper Dr. Harris names the five coördinate groups as follows: 1. Mathematics and physics. 2. Biology, including plant and animal. 3. Literature and art. 4. Grammar as a science and leading to logic and psychology. 5. History, including the study of sociological, political, and social institutions. Dr. Harris says: "It will be seen that the Committee of Fifteen intended their report to convince the careful reader that no one of these groups could be taken as a substitute for any other, and that no one of these groups could be spared from a symmetrical whole without destroying the pupil's view of the world. It would have needed no additional argument to arrive at the conclusion that if there are five coördinate groups, neither one of which can be a substitute for the other, and each of which is essential to the child's symmetrical view of the world, a concentration which subordinated one or more of these groups to another would do violence to the child's culture." So far as this passage is concerned, coördination expresses a distinct isolation of important groups and a fear of any closer dependence of one important group upon another. Coördination therefore gives no emphasis to the relations between studies. Expressed in the form of a diagram, coördination gives us in this case five parallel lines, with no cross-connections between the groups, as follows: —

Correlation, as commonly used, expresses the idea of interconnections between studies. A good analogy is the warp and woof of a woven fabric. The threads run in both directions and are closely woven together; the studies represent the linear threads, running lengthwise of the cloth, while the crossing threads represent the connections between studies. Expressed in the form of a diagram, it gives us the five main lines with cross-connections.

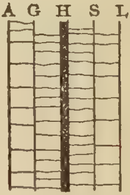
Concentration not only emphasizes connections, but it requires the dependence of some studies upon others. In an extreme form it sets one study or group of studies in the centre of the curriculum, and concentrates all other studies or groups in more or less subordinate relations around this centre. It is illustrated diagrammatically by a heavy line in the centre, with lesser parallel lines closely connected with it.



Coordinative



Correlation



Concentration

The sequence of topics in the subordinate study may be determined to some extent by the central study. The amount of this subordination depends upon the general plan of laying out the course of study.

In connection with coördinate groups of study the term "correlation" is used in a sense different from that described above. Each group of studies correlates the child, on one side, with the world, on the other. We might call this a linear correlation, the things correlated being the child and the world, through the long line of each particular study. In this sense correlation ignores the relations between the studies.

In the present chapter I am disposed to emphasize strongly the idea of correlation as a means of binding together more closely all the studies and experiences of a child.

In a very important sense the centre for all concentrating efforts in education is not simply the knowledge given in the school course, but the child's mind itself with its contents. We do not desire to find in the school studies an objective centre, but rather a means of fortifying the original stronghold of character which is built upon native mental characteristics and whatever is good in home influences. We have in mind the practical union of all the experiences and knowledge that find entrance into a particular mind.

There are several different ways by which correlation can be brought about.

First is the close serial connection of ideas in a single study. Most teachers will admit that each lesson should be a collection of connected facts, and that every study, so far as it is a science, should consist of a series of derivative and mutually dependent lessons. This is based upon the idea of a natural scientific order or sequence of topics upon which the systematic framework of a science rests. In our common school course grammar and arithmetic approximate complete sciences more nearly than the other studies. History has generally followed a pretty definite chronological order, and geography has, in most text-books, followed a traditional sequence which has been broken into of late. In reading lessons, nature study, and language lessons, nothing like a scientific sequence of topics has even been established. In spelling and writing we are trying to get possession of symbols rather than to master a science. In drawing and manual training the efforts to establish a fixed order of topics has led to an unpedagogical routine which had to be broken up.

Taken as a whole, the separate studies as they present themselves in the school course to-day, are not sciences. They are not systematic bodies of knowledge. Yet there is, in most studies, a partly scientific, partly pedagogical, sequence of topics which will greatly aid the children in the mastery of the separate branches. The study and mastery of arithmetic as a connection of closely related principles has not been sufficiently realized in practice. One of the chief difficulties in arithmetic is to get children to remember and apply what they have already learned.

It may be remarked, in passing, that by far too much has been made of this sequence of topics in a study as an argument for the strict isolation of studies. The isolation that has long prevailed in our school studies has helped to fix the traditional belief that it had a substantial basis in this important sequence of topics in each study. But an analytic examination of the materials in our common school studies will show that this reputed sequence in some cases does not exist, and in others is capable, without injury, of great modification.

Second. Correlation is chiefly concerned with the relation of different studies to each other, assuming that the studies of the school course have been properly laid out. This is due to the fact that a great number of important relations actually exist between different branches. Reading, for example, apart from its great lines of study in literature, is largely a relative study. The art of reading is merely a preparation for a better grasp of history, geography, arithmetic, and all studies. Supplementary readers, much used, consist almost exclusively of interesting matter bearing upon geography, history, and nature study. Geography, especially, serves to establish a network of connections between other kinds of knowledge. It is a very important supplement to history. Geography lessons are full of natural science, as of plants, rocks, animals, climate, inventions, machines, races, etc. Indeed, there is scarcely a school study that should not be brought into close relations to geography. Language lessons should receive all their subject-matter from history, natural science, geography, and literature. All the other studies should help to confirm and establish the correct language forms in use. Drawing is of direct value nowadays in nearly all studies. It can be shown that there are many topics in which two or more studies are nearly equally concerned. The Hudson River, for instance, is of great interest from the standpoint of history, geography, geology, and literature, and the knowledge of one is a direct support to the others.

Rein says ("Erstes Schuljahr," p. 20): "Concentration requires only that one form (study) of instruction seek and find points of contact with another form, the material worked over in one study must be recapitulated in another, and that which has been handled in one branch of instruction must be turned over to another for further elaboration. Every branch of study must presuppose that the other study either has or will do its duty in its own peculiar way, with the material which concerns them both. It is only this sort of mutual interaction between the branches of instruction which is demanded by genuine concentration."

An examination of the school studies themselves will show that the relations between different studies are, in very many cases, more important and significant than the relations between the different parts of the same science. This does not mean that we propose to mix and confuse the studies. We believe in the isolation, for purposes of instruction, of every important study, as has been already shown; but we believe also that every important topic in any study should be seen in its natural relations to topics in other studies, thus binding the studies together in a multitude of close interrelations. It has been assumed by those opposed to a close binding together of all the studies, that the important relations are not between the different studies but between the parts of any one study. If, however, we will select any important topic in botany, history, geography, and even arithmetic, and give it a genuine pedagogical treatment, we shall find that the roots of such a topic almost invariably reach out into the other sciences and establish those life connections which are the very essence of good instruction.

In the study of the apple tree in botany classes, on the principle of isolation, it has been customary to make an examination of the blossom and to note sufficient comparisons with other members of the rose family so as to trace it out and classify it in this group of plants (*Rosaceæ*). The purpose of such a study of botany is to get a knowledge of the leading classes of plants as artificially isolated from the rest of nature. This process of isolation is totally inadequate to a pedagogical study of trees and plants.

A proper study of the apple tree as a type of vegetation would include such topics as follows: the apple seedling, grafting, the roots in relation to soil and moisture, the functions of the bark, sap, and woody fibre, the dangers to the tree from cold, frost, rabbits, insects, influence of sunlight and climate; comparison of the apple tree with other fruit trees and plants; the influence of cultivation upon apples, wild apples, uses of the apple.

The treatment of the apple tree in this manner would involve the time of several lessons, running through several weeks, with observations, excursions, etc. It would reach deep into the subject of plant life and growth, and turn up new soil in every lesson. It is certain that questions would be raised involving the relation of the tree to geology, chemistry, physical geography, physics, and zoölogy, and the relations touched upon would be vital relations to these subjects.

The roots draw their moisture out of the soil and are particularly adapted to this purpose (geology), but the leaves also absorb from the air and from the sunlight life-giving elements (physics and chemistry). The frost and noxious insects threaten the life and fruitfulness of the tree (zoölogy and physics). The tree grows and flourishes and keeps up its life's processes hemmed in and vitalized by this environment of other sciences. Moreover, genuine instruction can never ignore these vital causal relations which exist between topics of different sciences. It is necessary to call attention here to the fact that such a topic as the apple tree, handled in the manner suggested, is a strictly botanical topic and does not purpose to teach geology, zoölogy, or chemistry.

The purpose is to understand the tree and its life and its utilities; but this is impossible, without tracing the close connections of the soil, sunlight, insect, etc., to the tree. A tree can no more be understood in its life processes when isolated as a botanical specimen than a man can be appreciated in his character and influence isolated from society. It is apparent that the purely botanical treatment of the apple tree is largely artificial, ignoring life relations, while emphasizing botanical classifications.

It is hardly necessary to multiply illustrations to show that almost every important topic in zoölogy or botany, if treated properly, would illustrate equally well our proposition that the relations between topics in different studies are very often more important and significant than the relations between different parts of the same science. In geography and history, I think this proposition may be maintained with equal force. Nearly every important topic in geography has its roots in history and the natural sciences.

The treatment of the falls of Minneapolis, for example, would bring in, by way of necessary explanation, the rock strata and the cañon below the falls (geology); the mills and turbine wheels (physics); sawmills and pineries (pine trees); the early history (Indians and Hennepin); besides the strict geographical relations of commerce, railroads, Minneapolis, etc.

Again, we say that a mixing of studies is not implied, but an understanding of one topic in one study in its relations. In none of these cases is it expected that a full treatment is given to any simply related topic. It may be remarked here, however, that skilful teaching is required in the treatment of such topics in order to avoid the mixing and confusing of studies. This is one of the dangers necessarily incident to a proper interrelation of studies.

Such studies as history, the natural sciences, and geography have everywhere these deep, vital, and multifarious interrelations. Reading, considered as masterpieces of human thought, belongs also to this group. But reading as an art, language lessons, writing, drawing, and some of arithmetic, stand in a different relation to the first-named studies. We have seen that language lessons in the first five or six grades have no scientific unity. They are simply exercises in written and oral expression for the purpose of forming right habits, with a few incidental rules and classes. The thought materials for language lessons are best drawn from history, natural science, or geography. Reading, language lessons, writing, and spelling have been sometimes called formal studies, as distinguished from content studies. Without entering into any dispute as to the relation of form to thought, it is still clear that what are ordinarily recognized as the forms of reading, spelling, writing, and good English require special drills. Not many teachers have yet reached the conclusion that reading, writing, and spelling can be properly mastered without special drill on the forms themselves. But in the common school the thought materials which must be brought into form are supplied by the other studies. This brings us to the extremely close relation that should subsist between geography, literature, history, and natural science on one side, and reading, writing, spelling, and language lessons on the other.

One of the strongest practical arguments in favor of a closer relation between studies is supplied by this relation of language lessons to other studies. Language lessons, as a separate study, are justified on the ground of their necessity as a means of acquiring correct forms or habits of oral and written language. On the one side language lessons need to draw their thought materials from geography, history, or natural science, because it is necessary to have abundant and interesting thought matter in order to secure free, abundant, and varied expression. On the other hand, language lessons, having laid their stress and drill upon certain language acquirements, turn these over to the other studies by which they are converted into permanent habit. Language drills will never cure the bad habits of children, unless the arithmetic, geography lessons, etc., insist upon the application and practice of those things drilled upon in the language lesson. It is entirely too much to expect that language lessons can overcome, with their brief drills, the faults which are passed over uncorrected in all the other exercises of the school. The fundamental principle here is, that what is learned and drilled upon in one study is learned for the purpose of applying it in all other recitations and studies. If this is not true, the thing learned is not worth learning. Knowledge is for use, and it is hypocrisy and inconsistency to emphasize a thing as important in one study and then neglect it in all others. On this principle, therefore, language lessons are buttressed on two sides by the other studies; they draw their invigorating thought materials from the other studies, and they depend also upon the other studies, for making their drills finally and permanently efficient in the children's habits.

Third. The relations between the school studies and the home life (including all the experiences of a child outside of school) are multitudinous, and, with the emphasis now placed upon apperception and upon child-study generally, the importance of these relations is much better understood. Most of a child's real knowledge of persons and things is derived from experiences outside of school. It is largely the business of the school to work over these ideas and incorporate them into school studies. In building up character, also, the school and home must work together.

At home or among companions, perhaps unknown to the teacher, a boy or girl may be forming a habitual tendency and desire, more powerful than any other force in his life, and yet at variance with the best influence of the school. If possible the teacher should draw the home and school into a closer bond, so as to get a better grasp of the situation and its remedy. The school will fail to leave an effective impress upon such a child unless it can get a closer hold upon the sympathies and thus neutralize an evil tendency. It must league itself with better home influences so as to implant its own impulses deeper in home life. How to unify home and school influences is one of those true and abiding problems of education that appeals strongly and sympathetically to parents and teachers.

Fourth. Looking at the school course as a whole, the amóunt of successful correlation depends upon the wisdom of those who lay out the course of study with a view to proper correlations. When a course of study has been laid out upon this basis, bringing the great threads or cables of human knowledge into proper juxtaposition at the various points, we shall be much better able to organize and unify knowledge.

In other words, the number and variety of important relations between different studies which can be brought out in instruction, depends, to a very large extent, upon the grouping of the different studies with reference to one another in the original plan of the course of study. Take any one year of the school course, and the number of proper and significant relations between the studies depends almost wholly upon the selection of materials in the different studies, with a view to multiplying opportunities for close connection. If, for example, we plan to study in fifth grade the early history of the thirteen colonies and their settlements, also the geography of the Atlantic states and of North America; if, at the same time, we read Hawthorne's "Grandfather's Chair," the "Courtship of Miles Standish," "Hiawatha," and other related historical and literary matter, if the language lessons are derived from history, literature, and science, if the science topics deal with the plants, animals, and geology peculiar to the same geographical regions, we should have an equally valuable body of material and a much better chance to organize it. If, on the other basis, we study the early history of America, the geography of Asia and Africa, for reading take "Gulliver's Travels," "The Lays of Ancient Rome," and a Fourth Reader, and select for lessons in science, language, and drawing topics unrelated to each other and to the other studies, we may have just as good materials but a poor chance to organize it. Would it be extravagant to say that a year's work properly planned and correlated would give ten times as many significant relations as a plan which ignored such a principle?

Fifth. Even after a good general plan is complete, the studies well selected and arranged, the real work of correlation consists in observing and fixing the relations as the facts are learned. It is but half the work to learn the facts. The other and more important half consists in understanding the facts by fixing the relations. This depends upon the skill and thoughtfulness of the teacher in the processes of instruction.

We will next discuss the series of reasons assigned for a better selection and organization of the school studies so as to secure a closer correlation in the details of instruction.

1. The unity of the personality as gradually developed in a child by wise education is essential to strength of character. Ackerman says on this point ("Ueber Concentration," p. 20): —

"In behalf of character development, which is the ultimate aim of all educative effort, pedagogy requires of instruction that it aid in forming the unity of the personality, the most primitive basis of character. In requiring that the unity of the personality be formed, it is presupposed that this unity is not some original quality, but something to be first developed. It remains for psychology to prove this and to indicate in what manner the unity of the personality originates. Now, psychology teaches that the personality, the ego, is not something original, but something that must be first developed, and is also changeable and variable. In infancy the ego, the personality, is consciously realized in one person sooner, in another later. In the different ages of life, also, the personality possesses a different content. The deeper cause for the mutual reference of all our manifold ideas to each other and for their union in a single point, as it were, may be found in the simplicity of the soul, which constrains into unity all things that are not dissociated by hindrance or contradiction. The soul, therefore, in the face of the varied influences produced by contact with nature and society, is active in concentrating its ideas, so that with mental soundness as a basis, the ego, once formed, in spite of all the transitions through which it may pass, still remains the same."

There is then a natural tendency of the mind to unify all its ideas, feelings, incentives.

On the other hand, the knowledge and experiences of life are so varied and seemingly contradictory, that a young person, if left to himself or if subjected to a wrong schooling, will seldom work his way to harmony and unity. In spite of the fact that the soul is a simple unit and tends naturally to unify all its contents, the common experience of life discovers in it unconnected and even antagonistic thought and knowledge centres. People are sometimes painfully surprised to see how the same mind may be lifted by exalted sentiments and depressed by the opposite. The frequent examples that come to notice of men of superiority and virtue along certain lines, who give way to weakness and wrong in other directions, are sufficient evidence that good and evil may be systematically cultivated in the same character, and that instead of unity and harmony education may collect in the soul heterogeneous and warring elements which make it a battle ground for life. All such disharmony and contradiction lend inconsistency and weakness to character. Not only can incompatible lines of thought and of moral action become established in the same person, but even those studies which could be properly harmonized and unified by education may lie in the mind so disjointed and unrelated as to render the person awkward and helpless in spite of much knowledge. In unifying the various parts of school education, and in bringing them into close connection with children's other experiences, the school life fulfils one of its chief duties.

An analogy may be drawn between the growth of knowledge in the mind and the construction of a building. We say that all a child's knowledge finds its centre and unity in the conscious self or ego.

The ego has partaken of all these experiences, remembers them as parts of its own life, and this memory is the thread that binds all together in one personality. Now in the construction of a large stone or brick building we find division of labor and materials among stone and brick masons, hod carriers, plumbers, plasterers, contractors, architects, etc. There is a certain degree of isolation in the separate parts of the work; the stone-cutters are busy in one place upon their materials, the brick-masons have their place and tools and work, the carpenters likewise; the work and the materials are isolated for convenience. But underneath all this variety of materials and work is the unifying plan of the architect, followed out by the contractors. Not a man's work or materials but have their place, not a stroke of work done but to a specific end. Everything moves as regulated by the plan that unifies the whole, even to its smallest details.

In this case, we may say that the principle of unification is fundamental, the idea of isolation incidental. As a child builds up the body, the complex of his knowledge and experience, should there be less or more of unity than in the construction of a building? The nervous system looked upon as part of an organism is more closely unified than any building. The brain, as a nervous centre, dominates the whole, as an absolute monarch from a throne, issuing orders. Now, as we venture to peep into the citadel of the mind itself, shall we look for isolation or for unification? What is the normal condition? What is the condition of power and efficiency? Organization, association, and close linking together of all the mental resources, or isolation, separation into inaccessible parts, division of resources, etc.?

2. If there is one dominant aim in education, then the school studies should be combined and focussed in the direction of that aim. If all the studies and exercises of the school should have an ethical centre, that is, should tend toward the strengthening of ethical principles as the central stronghold of a child's character, then closer nexus and interrelation are demanded.

In discussing the general aim of education in Chapter I, we found the difficulty not in setting up the aim but rather in bringing it into close relation to all the other essential purposes of education. To make ethical ideas clear to children is not specially difficult, but to bring ethical ideas into vital touch with the various fields of knowledge, with mental discipline, with æsthetic sentiment in literature and art, and especially with conduct, is the most difficult and important problem in education. Clearly defined ethical ideas must stand in the centre of consciousness and shed their light in all directions over the fields of knowledge. This means, as far as possible, the organization of all knowledge and experience around ethical ideas as centres of influence. This means that the chief lines of habit in thought and in action must be brought into harmony with ethical standards.

The greater, then, the number of clear mental relations of a fact to other facts in the same and in other studies, the more likely it is to render instant obedience to the will when it is needed. Such ready mastery of one's past experiences and accumulations promotes confidence and power in action. Concentration is manifestly designed to give strength and decision to character. But a careless education, by neglecting this principle, by scattering the mind's forces over broad fields, and by neglecting the connecting roads and paths that should bind together the separate fields, can actually undermine force and decision of character.

3. It seems hardly necessary to call attention to the laws of association as establishing the natural paths and highways of the mind's activities, tending always toward unity; of the fact that all study is a study of relations, if insight is reached; that mental assimilation is association, organization of knowledge, synthesis, and the association by cause and effect which gives us the cross-roads between the sciences.

We are not conscious of the constant dependence of our thinking and conversation upon the laws of association. It may be frequently observed in the familiar conversation of several persons in a company. The simple mention of a topic will often suggest half a dozen things that different ones are prompted to say about it, and may even give direction to the conversation for a whole evening. Now, if it is true that ideas are more easily remembered and used if associated, let us increase the associations. Why not bind all the studies and ideas of a child as closely together as possible by natural lines of association? Why not select for reading lessons those materials which will throw added light upon contemporaneous lessons in history, botany, and geography? Then if the reading lesson presents in detail the battle of King's Mountain, take the pains to refer to this part of the history and put this lesson into connection with historical facts elsewhere learned. If a reading lesson gives a full description of the palm tree, its growth and use, what better setting could this knowledge find than in the geography of Northern Africa and the West Indies?

4. Without laying any undue stress upon simple knowledge, we believe that a small amount of well-articulated knowledge is more valuable than a large amount of loose and fragmentary information. A small, disciplined police force is able to cope with a large, unorganized mob.

Frank McMurry, in "Relation of Natural Science to Other Studies," says:—

"The very important principle here involved is that the value of knowledge depends not only upon the distinctness and accuracy of the ideas, but also upon the closeness and extent of the relations into which they enter. This is a fundamental principle of education. It was Herbart who said, 'Only those thoughts come easily and frequently to the mind which have at some time made a strong impression and which possess numerous connections with other thoughts.' And psychology teaches that those ideas which take an isolated station in the mind are usually weak in the impression they make, and are easily forgotten. A fact, however important in itself, if learned without reference to other facts, is quite likely to fade quickly from the memory. It is for this reason that the witticisms, sayings, and scattered pieces of information, which we pick up here and there, are so soon forgotten. There is no way of bringing about their frequent reproduction when they are so disconnected, for the reproduction of ideas is largely governed by the law of association. One idea reminds us of another closely related to it; this of another, etc., till a long series is produced. They are bound together like the links of a chain, and one draws another along with it just as one link of a chain drags another after it. A mental image that is not one of such a series cannot hope to come often to consciousness; it must as a rule sink into oblivion, because the usual means of calling it forth are wanting.

"It is only by associating thoughts closely that a person comes to possess them securely and have command over them. One's reproduction of ideas is then rapid enough to enable him to comprehend a situation quickly and form a judgment with some safety; his knowledge is all present and ready for use; while, on the other hand, one whose related thoughts have never been firmly welded together reproduces slowly, and in consequence is wavering and undecided. His knowledge is not at his command, and he is therefore weak."

5. In later years, when we consider the results of school methods upon our own character, we can see the weakness of a system of education which lacks correlation, a weakness which shows itself in a lack of retentiveness and of ability to use acquired knowledge. We are only too frequently reminded of the loose and scrappy state of our acquired knowledge by the ease with which it eludes the memory when it is needed. To escape from this disagreeable consciousness in after years, we begin to spy out a few of the mountain peaks of memory which still give evidence of submerged continents. Around these islands we begin to collect the wreckage of the past and the accretions of later study and experience. A thoughtful person naturally falls into the habit of collecting ideas around a few centres, and of holding them in place by links of association. In American history, for instance, it is inevitable that our knowledge become congested in certain

important epochs, or around the character and life of a few typical persons. The same seems to be true also of other studies, as geography and even geometry. The failure to acquire proper habits of thinking is also exposed by the experience of practical life. In life we are compelled to see and respect the causal relations between events. We must calculate the influences of the stubborn forces and facts around us. But in school we often have so many things to learn that we have no time to think. At least half the meaning of things lies not in themselves, but in their relations and effects. Therefore, to get ideas without getting their significant relations is to encumber the mind with ill-digested material. A sensible man of the world has little respect for this kind of learning.

One reason why knowledge is so poorly understood and remembered is because its real application to other branches of knowledge, whether near or remote, is so little observed and fixed. Looking back upon our school studies we often wonder what botany, geometry, and drawing have to do with each other and with our present needs. Each subject was so compactly stowed away on a shelf by itself that it is always thought of in that isolation,—like Hammerfest or the Falkland Islands in geography, — out-of-the-way places. Are the various sciences so distinct and so widely separated in nature and in real life as they are in school? An observant boy in the woods will notice important relations between animals and plants, between plants, soil, and seasons, that are not referred to in the text-books. In a carpenter shop he will observe relations of different kinds of wood, metals, and tools to each other that will surprise and instruct him. In the real life of the country or town the objects and materials of knowledge, representing the sciences of nature and the arts of life, are closely jumbled together and intimately dependent upon each other. The very closeness of causal and local connections, and the lack of orderly arrangements shown by things in life, make it necessary in schools to classify and arrange into sciences. But it is a vital mistake to suppose that the knowledge is complete when classified and learned in this scientific form. Classification and books are but a faulty means of getting a clear insight into nature and human life or society. Knowledge should not only be mastered in its scientific classifications, but also constantly referred back to things as seen in practical life and closely traced out and fixed in those connections. The vital connections of different studies with each other are best known and realized by the study of nature and society.

In later life we are convinced at every turn of the need of being able to recognize and use knowledge outside of its scientific connections. A lawyer finds many subjects closely mingled and causally related in his daily business which were never mentioned together in text-books. The ordinary run of cases will lead him through a kaleidoscope of natural science, human life, commerce, history, mathematics, literature, and law, not to speak of less agreeable things. But the same is true of a physician, merchant, or farmer, in different ways. Shall we answer to all this, that schools were never designed to teach such things? They belong to the professions or to the school of life, etc.

But it is not simply in professions and trades that we find this close mingling and dependence of the most divergent sorts of knowledge, this unscientific mixing of the sciences. Everywhere knowledge, however well classified, is one-sided and misleading, which does not conform to the conditions of real life. A wise mother in her household has a variety of problems to meet. From cellar to garret, from kitchen to library, from nursery to drawing-room, her good sense must adapt all sorts of knowledge to real conditions. In bringing up her children she must understand physical and mental orders and disorders. She must judge of foods and cooking, of clothing, as to taste, comfort, and durability; of the exercises and employments of children, etc. Whether she is conscious of it or not, she must mingle a knowledge of chemistry, psychology, medicine, sanitation, the physics of light and air, with the traditional household virtues in a sort of universal solvent from which she can bring forth all good things in their proper time and place. As Spencer says, education should be a preparation for complete living. The final test of a true mastery and correlation of knowledge in the mind is the ability to use it readily in the varied and tangled relations of actual experience.

The final and conclusive reason, from the practical side, is that real life demands these interrelations. The isolation of studies is a thing not found in the world outside of the schoolroom and of scientific texts. Whether we look in the wilds of nature or in the midst of populous cities, we shall nowhere find things so beautifully ordered and classified and isolated as they are in the schoolroom and in textbooks. Nature everywhere mixes and tangles the sciences. Man, in his practical arts and activities, does the same. Nature does not put all the butterflies in one field, all the birds in another, all the plants in another, and all the sunshine in another. In nature we find great life societies where all these forms and phases of organic life and inorganic matter are bound together by the closest and tightest causal bonds. The druggist in his store does not deal with simply one isolated science, the farmer must know plants and animals, weather and markets, machines and soils; the physician needs now a little sunshine in his heart, now a little medicine in his knapsack. It may be a case of bone fracture, or of mental abnormality, with which he is suddenly called upon to deal. The druggist or the physician must first master each science in its scientific order and isolation, and there is no other road to mastery. But the application of scientific knowledge is always in a world where things are not scientifically ordered, and it generally takes as long to learn how to apply a science as it does to learn the science itself.

The great purpose of education, as generally admitted, is to prepare children for life. *Non scholæ sed vitæ discimus.* Now, if children learn only to recognize things in their scientific form and isolation in the schoolroom, how shall they be able to disentangle the actual relations of real life? Many of the things learned and classified in the schoolroom are not recognized when seen by children outside. Why should the school tear asunder and leave in isolation those things which in the common experiences of men are bound together by many important and vital links of connection? We repeat, scientific, thoroughly organized, and classified knowledge is indispensable, but it is never the goal to be set up for the studies of the school course. It is only a halfway station on the road to real knowledge and interpretation of life.

The criticism certain to be raised against us is, that we fail to recognize the value of scientific knowledge. Our purpose, however, is not to question its value, but to discover its true importance and to lay proper stress upon the application and use of knowledge. It goes without saying, that a large share of the knowledge gained in schools finds no application in life. The reason for this is, not so much that the knowledge gained is worthless, as that it has not been organized and thought out in those relations that correspond to the usual conditions of life. Knowledge is power only when it can be turned to interpretative use, not simply in the class room but under the conditions and pressure of life's experience. A close organization and practical interrelation of all the phases of school knowledge and of life experience is the only thing that can give a person a ready command of his resources.

Again, the reduction of different kinds of knowledge to scientific system in separate studies must always be looked upon as simply a means to an end. The great end in view in every study is to get a better understanding of the world of men and things around us.

6. Science itself, however, is related or classified knowledge. As already shown, it is the solid basis for the sequence of topics in those subjects that admit of scientific grouping and arrangement. There is no conflict between plans of correlation and proper scientific classifications; on the contrary, they are one and the same thing. It was only the narrow and exclusive grouping of the sciences, in

total isolation from one another, that tended to weaken correlation.

In the last few years the scientists themselves have taken a great step in advance by abandoning the narrow and strict classifications of a generation ago, and by treating each topic broadly in its relations to other sciences and studies. It is no longer sufficient to classify a tree or plant in a system, but its adaptation to its environment, its relations to soil, sunlight, insects, climate, its use or damage to man, its evolution, etc., must be traced out. We hear much of the laws which govern life groups and societies in nature, in their mutual relations, involving all the sciences to some extent in a single topic. The scientists themselves have broken over the narrow, scientific boundaries which hindered them from tracing out the deeper laws of nature, which are correlations of the sciences, and the schoolmaster can take the hint and abandon his antiquated theory of purely isolated sciences.

The historian is no longer satisfied to follow a narrow line of political history. He must see the relations of history to scientific progress, to literature, to social customs; to geography, physiography, to economic laws, to education and religion, and to many other forces in society. It is only by tracing out these wide correlations that any important topic nowadays can be understood.

7. The multiplication of studies in the common

schools in recent years will soon compel us to pay more attention to correlation or the mutual relation of knowledges. There is a resistless tendency to convert the course of studies into an encyclopædia of knowledge. To perceive this it is only necessary to note the new studies incorporated into the public school within a generation. In spite of all that has been said by educational reformers against making the acquisition of knowledge the basis of education, the range and variety of studies have been greatly extended and chiefly through the influence of the reformers. This expansive movement appears in schools of all grades. The secondary and fitting schools and the universities have spread their branch likewise over a much wider area of studies. We are in the full sweep of this movement along the whole line, and it has not yet reached its flood.

The simplicity of the old course, both in the common school and in higher institutions, is in marked contrast to the present multiplicity. It was a narrow current in which education used to run, but it was deep and strong. Strong characters have often been developed by a narrow and rigid training along a single line of duty, as is shown in a case of the Jesuits, the Humanists, and the more recent devotees of natural science.

As contrasted with this, the most striking feature of our public schools now is their shallow and superficial work. It is probable that the teaching in lower grades is better than ever before, but as the tasks accumulate in the higher grades there is a great amount of smattering. The prospect is, however, that this disease will grow worse before a remedy can be applied. The first attempt to cultivate broader and more varied fields of knowledge in the common school must necessarily exhibit a shallow result. Teachers are not familiar with the new subjects, methods are not developed, and the proper adjustments of the studies to each other are neglected. No one who is at all familiar with our present status will claim that drawing, natural science, geography, and language are yet properly adjusted to each other. The task is a difficult one, but it is being grappled with by many earnest teachers.

It is obvious that the first serious effort to remedy this shallowness will be made by deepening and intensifying the culture of the new fields. The knowledge of each subject must be made as complete and detailed as possible. Well-qualified teachers and specialists will of course accomplish the most. They will zealously try to teach all the important things in each branch of study. But where is the limit? The capacity of children. And it will not be long before philanthropists, physicians, reformers, and all the friends of mankind will call a decisive halt. Children were not born simply to be stuffed with knowledge.

It appears, therefore, that we must steer between Scylla and Charybdis, or that we are in a first-class educational dilemma. This conviction is strengthened by the reflection that there is no escape from fairly facing the situation. Having once put our hand to the plough, we cannot look back. The common school course has greatly expanded in recent years, and there is no probability that it will ever contract. It has expanded in response to proper universal educational demands. For we may fairly believe that most of the studies recently incorporated into the school course are essential elements in the education of every child that is to grow up and take a due share in our society. It is too late to sound the retreat. The educational reformers have battled stoutly for three hundred years for just the course of study that we are now beginning to accept. The edict cannot be revoked, that every child is entitled to a harmonious and equable development of all its human powers, or, as Herbart calls it, a harmonious culture of many-sided interests. The nature of every child imperatively demands such broad and liberal culture, and the varied duties and responsibilities of the citizen make it a practical necessity. No narrow, one-sided culture will ever equip a child to act a just part in the complex social, political, and industrial society of our time. But the demand for depth of knowledge is just as imperative as that for comprehensiveness.

It is clear that two serious dangers threaten the quality of our education: first, loose and shallow knowledge; second, overloading with encyclopædic knowledge. What can correlation do to remedy the one and check the other? The cure for these two evils will be found in so adjusting the studies to each other, in so building them into each other, as to secure a mutual support. The study of a topic not only as it is affected by others in the same subject, but also by facts and principles in other studies, is an antidote against superficial learning. In tracing these causal relations, in observing the resemblances and analogies, the interdependence of studies, as geography, history, and natural science, a thoughtfulness and clearness of insight are engendered quite contrary to loose and shallow study.

Correlation at once discards the idea of encyclopædic knowledge as an aim of school education. It puts a higher estimate upon related ideas and a lower one upon that of complete or encyclopædic information. All the cardinal branches of education indeed shall be taught in the school, but only the essential, the typical, will be selected, and an exhaustive knowledge of any subject is out of the question. Correlation will put a constant check upon over-accumulation of facts, and will rather seek to strengthen an idea by association with familiar things than to add a new fact to it. No matter how thorough and enthusiastic a specialist one may be, he is called upon to curtail the quantity of his subject and bring it into proper dependence upon other studies.

There is a growing conviction among teachers that we need a closer articulation of studies with one another. The expansion of the school course over new fields of knowledge and the multiplication of studies compel us to seek for a simplification of the course. A hundred years ago, yes, even fifty years ago, it was thought that the extension of our territory and government to the present limits would be impossible. It was plainly stated that one government could never hold together people so widely separated. Mr. Fiske, in "The Critical Period of American History," p. 60, says : —

"Even with all other conditions favorable, it is doubtful if the American Union could have been preserved to the present time without the railroad. Railroads and telegraphs have made our vast country, both for political and for social purposes, more snug and compact than little Switzerland was in the Middle Ages or New England a century ago."

The analogy between the realm of government and of knowledge is not at all complete, but it suggests at least the change which is imperatively called for in education. In education as well as in commerce there must be trunk lines of thought which bring the will as monarch of the mind into close communication with all the resources of knowledge and experience. Indeed, in the mind of a child or an adult there is much stronger necessity for centralization than in the government and commerce of a country. The will should be an undisputed monarch of the whole mental life. It is the one centre where all lines of communication meet. London is not so perfect a centre for the commerce and finance of England as is the conscious ego for all its forms of experience.

8. On account of the multiplication of studies in the school course and the consequent tendency to shallowness, it is necessary to employ all the best means for economizing time. There are three important ways in which the correlation of studies produces economy of effort.

First. In the great central studies, such as history, geography, science, and reading, the tracing of relations from one study into another gives an excellent review, incidentally, of those studies into which the relations are traced. In reading Holmes's "Grandmother's Story of Bunker Hill" in the regular reading work, there is an excellent review of the battle of Bunker Hill in history and of the geography of Boston. A like advantage is found in reading "The Courtship of Miles Standish," "The Lays of Ancient Rome," "The Lady of the Lake" "Marmion," "Hiawatha," the stories of Ulysses, of William Tell, "Evangeline," and many other excellent poems and stories used in our reading work. In studying the geography of the Rhine River, there is an incidental review of topics in history and literature suggested by the great fortresses, ruined castles, Gothic churches, cities, and monuments. A similar statement may be made about most of the important topics in geography. The peculiar advantage of such incidental reviews is that they present these old topics, in other studies, from a new and interesting point of view. The incidental reviews produce a decided economy by diminishing the amount of time necessary in the ordinary reviews of those studies. At the same time, by increasing the important connections between topics, they greatly aid the memory in holding all the facts together.

Second. In the important series of secondary studies, such as language lessons, drawing, spelling, writing, and some phases of arithmetic and reading, there is a great economy of time in correlating these studies as closely as possible with the central studies, history, geography, science, and literature. Language lessons should derive their topics almost exclusively from the real studies just named. A language lesson based upon the study of the Rhine River in geography is much better than one based upon nothing in particular, or upon some outside topic having no other relation to the present work of the school. Such a correlated lesson gives much more interesting thought content to the language lesson and is, at the same time, the best possible review of the geography. The drawing lessons in a similar way are of great value in giving a more definite expression to many topics in history, science, and geography. It is the most natural thing in the world for children to desire to draw primitive houses, forts, boats, ships, buildings, churches, tools, machines, industrial processes, and striking historical scenes in which they have become interested through other studies. These topics, derived from other studies, furnish the best impulse and motive to the drawing lessons, and at the same time give a clearness and sharp review which are of great value to the other studies. There are also many lessons in geography, history, and science where arithmetical computations are necessary. The supplementary readers in history, geography, and science are proofs of the economy which can be easily practised in these studies. In music, patriotic and religious songs, also those based upon human activities, natural scenery, history, and literature, may greatly reënforce leading ideas in those studies.

Third. In some cases the correlation is so close and the dependence of one study upon another so complete that certain studies have been partly or wholly eliminated from the school course as independent studies. This is best illustrated by what used to be known as object lessons, which for many years constituted an independent branch of study in schools. It was gradually discovered that all studies need to be objectively illustrated, and therefore the different phases of object study have been absorbed into the various studies where they belong.

In many schools the exercises in drawing and writing have been largely incorporated into the written work necessary in the other studies. Many of the best educators think that there should be no independent drawing lessons below the fourth or the fifth grade. The drawing work should be wholly subordinated in the lower grades to the expression of thought in the chief studies. In quite a number of progressive schools number work has been dropped as an independent study in the first two years, its place being taken by the correlated number exercises in constructive work, in weather study, and in other phases of nature study.

Manual training and constructive work have been pressing their way into the schools, more recently, in all the grades from the primary through the high school. Reasoning by the analogy of the object lessons, there seem to be good reasons for believing that manual training will lose its place as an independent study below the high school. In all the important studies there is more or less demand for motor activity, for drawing, making and constructing the objects, or their models, which become interesting centres of study. This power to realize the objects of study in some concrete and objective form is vital to the best study. It sets children to work in the final stage of educative effort, the execution of thought in action and creative effort. It may be, therefore, that in connection with manual training and constructive exercises we shall have not a new study or group of studies, but a deeper stimulation to a strong and vital grasp of the old studies. This will be a double economy.

Art studies are also pushing their way into the schools and are demanding a good deal of attention from progressive teachers, for they will be of the very greatest value in setting before children the most worthy and stimulating objects of thought. But their greatest value will be found in the enrichment they bring to the old studies. Like manual training they should be absorbed into the present body of school studies.

In the three important ways just described and illustrated the proper correlation of studies is destined to bring about a great simplification of the school course and a most encouraging economy of time and effort. The problem of correlation is difficult and many-sided, but it promises in the end great relief to overburdened teachers and pupils.

Such an examination of the mutual relations and courtesies between studies as is outlined above, may also discover to us the fact that we are now unconsciously or thoughtlessly duplicating the work of studies to a surprising extent. We make two sets of drawing lessons where one set would answer the purpose much better. By isolating the language lessons and by cutting them off from communication with history, geography, and natural science, we get several sets of language lessons, one in language proper, and others in geography, history, etc., for it is necessary to use correct language, and to drill for it, if needed, in all studies. The drills, however, being distributed over a larger area of subjects, will be much less effective and will require more time.

The same scattering of effort and waste of time is noticed also in the spelling and writing. If manual training is erected into an independent study, we have there also the double series of manual exercises, one in the manual training proper, unrelated to the other studies, and the other in the series of constructions called for in geography, history, and natural science.

Moreover, by excluding an interesting subject-matter derived from other studies, the interest and mental life awakened by language lessons, drawing, etc., are reduced to a minimum; the work is sluggish and lifeless, and time is squandered.

Is it within the range of healthy child-thought to associate ideas in different studies and to see the value of the connections? Have children the capacity and the disposition to relate ideas, to think? The answer to this question lies with those who know and appreciate children best, who have watched them judiciously in their studies and voluntary employments. In the decision of this question teachers can afford to weigh their own experience as well as the testimony of authorities.

Take children from intermediate or grammar grades, what kind of study in geography or history, or natural science, puts them to their best thinking and self-activity? Are they predominantly receptive, simply accumulating the materials of thought for later use, or are children thinkers? There is a strong disposition now among some teachers and among psychologists to look upon boys and girls as exhibiting from childhood up all the essential phases of mental activity. There is very little doubt, for example, that children do some excellent reasoning and thinking before they enter school at six. It is a conviction with many that school children are not only capable of exercising a rational judgment and thought power, but that the very life of instruction depends primarily upon this thought-stimulating process. Simply to learn and stow away facts is a dull and burdensome employment, but to look for reasons, to see and understand necessary connections, to discover resemblances, important associations, and laws, is the very relish of knowledge-gaining. Intelligent boys and girls are no more satisfied with simply learning facts than intelligent men and women are. Children learn to think, under normal conditions, about as fast as they accumulate the materials of thought.

And yet in such a discussion dogmatism is all out of place, for the world can no longer be imposed upon by anybody's dogmas. The children are ever present with us. Thousands of teachers and parents are at work upon the materials at first hand, and every thoughtful teacher must in the end decide the question for himself.

Are teachers undertaking too much when they assume to train children to think? At the best, teachers can only supply the favorable conditions for mental activity in children. Those opposed to the emphasis we place upon correlation and concentration stand in fear of an artificial effort of teachers to portion out and mingle the ingredients of study. But we do not propose to do the child's thinking for him. He must eat his own food and digest it according to his own capacity. The process by which a child accumulates and assimilates the materials of knowledge must be his own process of thought.

The function of the teacher is to provide the suitable materials and to render the conditions as favorable as possible to the child's exercise of his own mental forces. The teacher is, at best, only a careful, judicious supervisor of a natural process. And yet it will be generally acknowledged that the kind of thinking done by the children will depend chiefly upon the teacher's plan of arranging and handling the materials. The purpose of the teacher's plan and method is to engender self-activity, to throw a child upon his own resources in accumulating and interpreting knowledge and experience. These phrases about self-activity are easy and cheap. But what do they stand for in our work with children? How are they to become open-eyed, clear-headed, and self-reliant as they meet and absorb the experiences of school and home? Is the education of children chiefly dogmatic on the part of teachers and receptive on the part of children, or is it a process of thought stimulation and invigorating self-activity? Thinking relations between studies, the broader survey of every topic handled in every study in all its relations north and south, east and west, up and down — all this means more self-activity, more rational self-help, or it means nothing.

Lessing, in his tractate on the use of the fable, says: —

"Why is it in all sciences and arts there is such a dearth of inventive and self-reliant thinkers? This question is best answered with another. Why are we not better educated? God gives us a soul, but genius (clear thinking) we must acquire through education. A boy whose entire mental powers are developed and broadened out in due proportion, who is taught rapidly to compare all that he adds to-day to his little store of knowledge with what he already learned yesterday, and is on the lookout to see whether by this comparison he does not arrive at things for himself not told him before; who is permitted constantly to glance over from one science into another; who is taught to rise just as easily from the particular to the general, as to descend from the general to the particular — this boy will become a genius (a clear thinker) or one cannot become anything at all in this world."

This passage from Lessing is an emphatic demand for the exercise of thought power in children. It is an unequivocal and absolute call for mental alertness and originality and many-sided survey of knowledge as fast as it accumulates. So far from being satisfied with mere inventories in elementary instruction, it leaps at once to the more important demand for elaboration of knowledge in self-active effort. It is a plain demand for constant thoughtfulness and survey, glancing ever from study to study, from school to life, from particular to general, and vice versa. It calls for intelligent assimilation of ideas at every stage of progress.

Historically considered, the principle of concentration has been advocated and emphasized by many writers and teachers. The most striking and decided attempt to apply it was made by Jacotot in the first quarter of the nineteenth century, and had great success in France. Mr. Joseph Payne, in interpreting Jacotot ("Lectures on the Science and Art of Education," p. 339), lays down as his main precept, "Learn something thoroughly and refer everything else to it." He emphasized above everything else clearness of insight and connection between the parts of knowledge. It was principally applied to the study of languages, and called for perfect memorizing by incessant repetition and rigid questioning by the teacher. The purpose was to insure perfect understanding, in the first instance, of new facts acquired; and secondly, firm association with all previous knowledge. Jacotot and his disciples reached notable results by a heroic and consistent application of this principle, and some of our present methods in language are based upon it. But on the whole, the principle was only partially and mechanically applied. Its aim was primarily intellectual, even linguistic, not moral. There was no philosophical effort made to determine the relative value of studies and thus find out what study or series of studies best deserved to take the leading place in the school course. The importance of interest, as a means of rousing mental vigor and as a criterion for selecting concentrating materials suited to children at different ages, was overlooked.

A kind of concentration has long been practised in Germany, and to a considerable extent in our own schools, which is known as the concentric circles.

In our schools it is illustrated by the treatment of geography, grammar, and history. In beginning the study of geography in the third or fourth grade it has been customary to outline the whole science in the first primary book. The earth as a whole and its daily and yearly motion, the chief continents and oceans, the general geographical notions, mountain, lake, river, etc., are briefly treated by definition and illustration. Having completed this general framework of geographical knowledge during the first year, the second year, or at least the second book, takes up the same round of topics again and enters into a somewhat fuller treatment of continents, countries, states, and political divisions. The last two years of the common school may be spent upon a large, complete geography, which, with larger, fuller maps and more names, gives also a more detailed account of cities, products, climate, political divisions, and commerce. Finally, physical geography is permitted to spread over much the same ground from a natural science standpoint, giving many additional and interesting facts and laws concerning zones, volcanoes, ocean beds and currents, atmospheric phenomena, geologic history, etc. The same earth, the same lands and oceans, furnish the outline in each case, and we travel over the same ground three or four times successively, each time adding new facts to the original nucleus. There is an old proverb that "repetition is the mother of studies," and here we have a systematic plan for repetition, extending through the school course, with the advantage of new and interesting facts to add to the grist each time it is sent through the mill. It is an attractive plan at first sight, but if we appeal to experience, are we not reminded rather that it was dull repetition of names, boundaries, map questions, location of places, etc., and after all not much detailed knowledge was gained, even in the higher grades? Again, is it not contrary to reason to begin with definitions and general notions in the lower grades and end up with the interesting and concrete in the higher?

In the language lessons and grammar it has been customary to learn the kinds of sentence and the parts of speech in a simple form in the third and fourth grades, and in each succeeding year to review these topics, gradually enlarging and expanding the definitions, inflections, and constructions into a fuller etymology and syntax. In the United States history we are beginning to adopt a similar plan of repetitions, and the frequent reviews in arithmetic are designed to make good the lack of thoroughness and mastery which should characterize each successive grade of work. The course of religious instruction given in European schools is based upon the same reiteration year by year of essential religious ideas. The whole plan, as illustrated by different studies, is based upon a successive enlargement of a subject in concentric circles, with the implied constant repetition and strengthening of leading ideas. A framework of important notions in each branch is kept before the mind year after year, repeated, explained, and enlarged, with faith in a constantly increasing depth of meaning. There is no doubt that under good teaching the principle of the concentric circles produces some excellent fruits, a mastery of the subject, and a concentration of ideas within the limits of a single study.

The disciples of Herbart, while admitting the merits of the concentric circles, have subjected the plan to a severe criticism. They say it begins with general and abstract notions and puts off the interesting details to the later years, while any correct method with children will take the interesting particulars first, will collect abundant concrete materials, and by a gradual process of comparison and induction reach the general principles and concepts at the close. It inevitably leads to a dull and mechanical repetition instead of cultivating an interesting comparison of new and old and a thoughtful retrospect. It is a clumsy and distorted application of the principle of apperception, of going from the known to the unknown. Instead of marching forward into new fields of knowledge with a proper basis of supplies in conquered fields, it gleans again and again in fields already harvested. For this reason it destroys a proper interest by hashing up the same old ideas year after year. Finally, the concentric circles are not even designed to bring the different school studies into relation to each other. At best they contribute to a more thorough mastery of each study. They leave the separate branches of the course isolated and unconnected, an aggregation of unrelated thought complexes. True correlation should leave them an organic whole of intimate knowledge-relations, conducing to strength and unity of character.

CHAPTER V

INDUCTION

We are now prepared to inquire into the mind's method of approach to any and all subjects. We have considered the aim of education, the value of different subjects as helping toward that aim, the natural interests which give zest to studies, and finally the general plan of combining and relating topics so as to bring about unity of purpose and unity of matter in the mind. As a child enters upon the work of acquisition are there any regulatives to guide the process of learning?

Induction, or the concept-bearing process, shows the tendency of our minds to advance from the inspection of particular objects and actions to the understanding of general notions or concepts. The study and analysis of this process casts us forthwith into the midst of psychology, and calls for a knowledge of that succession and network of mental activities discussed in all the psychologies: sensation, discrimination, perception, analysis and synthesis, comparison, judgment, generalization or concept, reasoning. An inquiry into these mental activities, which are among the most important in psychology, is necessary as a basis of induction and of general method.

But even the more profound study of psychology does not necessarily give insight into correct methods of teaching. Many great psychologists have had little or no interest in teaching. Even eminent specialists in electricity and chemistry have not often been those to draw the immediate practical benefit from their studies. The application of psychology to the work of instruction constitutes a distinct field of inquiry and experiment. The output of the best experimental thinking in this direction may be called pedagogy.

The process of induction or concept-building leads the mind, as above indicated, through a series of different acts. We may first observe how far the mind is naturally inclined to follow this process, and whether it is a mark of healthy mental action in children and in adults. Later, we may examine more closely the successive stages in the process itself.

To get at the natural process it is well to observe first the action of a child's mind. By analyzing a simple case of a farmer's child we may trace the mental steps in forming a general notion. So long as it has seen no barn except that on its father's farm, the word "barn" means to it only that particular object. But when it discovers that one of the neighbors has a similar building called a barn, it learns to put these different objects under one head, and the general notion "barn" as a building for horses, cattle, and feed gradually rises in the mind. Long before the child is six years old (school age) it may have seen enough of such barns for the general notion to be distinctly formed. By observing the different objects, by comparing and grouping similar things together, it has formed a general notion in a regular process of induction, and that without any help from teachers.

At two and three years of age, or as soon as a child begins to recognize and name new objects (because of their resemblance to things previously seen) this tendency to concept-building is manifest. Another illustration: The child has seen the family horse several times, till the word "horse" becomes associated with that animal. While out walking it sees another horse, and pointing its finger says "horse." The memory of the first horse and the similarity calls forth the natural conclusion that this is a horse, though it may not be able to formulate the sentence. More horses are seen and compared, till the word becomes the name of a whole class of animals. By a gradual process of observation, comparison, and judgment the word "horse" comes to stand for a large group of objects in Nature.

A child's mind is naturally very active in detecting resemblances and in grouping similar objects together. It notices that there are certain people called "women," others called "men"; that certain animals are called "sheep," others "cattle." One class of objects receives the name "book," another "stove," etc. The work of observing, comparing, and classifying is a perpetual operation in the child's active moods. In this way what may appear at first as an interminable confusion or blur of objects in Nature begins to fall into groups and classes with appropriate names. It is the child's own way of bringing order out of the apparent chaos of his surroundings. All this process of classification is natural and nearly unconscious, and results in a better understanding and interpretation of the things around him.

Observe next the work of an adult, and how he increases and arranges his knowledge. If he is an incipient dry-goods merchant, he learns by sight and touch to detect the quality of goods. He compares and classifies his experiences and becomes in time an expert in judging textile fabrics. On the other hand, he becomes acquainted by personal contact with various customers, and learns how to classify and judge them both as buyers and as debtors.

If a botanist finds a new plant, he examines its stem, leaves, root, flower, seed, and environment. While entering into these details he is also comparing it with familiar classes of plants. Finally, he is not satisfied till he can definitely locate it in his previous system. With every new plant that he discovers he travels over the whole road from the individual particulars to the general classes of his whole system. The merchant and the scientist follow out with painstaking care and industry the same course which was involuntarily taken by the child; namely, observation of particulars, comparing, and grouping into classes. The same habit of mind may be observed in all people who are growing knowledge-ward and who possess any thoughtful instincts. In building up concepts, especially with the adult, induction is constantly mingled with deduction. As fast as general notions are formed they are used to interpret new objects. As the amount of this organized and classified knowledge increases, we reason more and more deductively.

In acquiring knowledge along the line of induction, we are on the road to the solution of the puzzle that Nature puts to the child. To every infant, indeed, the world is an enormous riddle or puzzle, whose parts lie in fragments about him, waiting the operation of his curious and inventive mind toward the reconstruction of the whole. Endless variety and complexity confront us all in the beginning. There is indeed an order and classification of things in Nature, but it does not appear on the surface, and for centuries men remained ignorant of the underlying harmony. Nature is full of valuable secrets, but they lie concealed from the careless eye. They are to be detected by prying deeper into individual facts, by putting a thing here and a thing there together, by pondering on the relationship of things to each other in their nature, appearance, and cause. It is a remarkable fact that we not only increase knowledge best by analyzing, comparing, and classifying objects, experience, and phenomena, — even into old age, — but that the deeper we penetrate into the individual qualities and inner nature of objects, the more we extend and classify our information, the simpler all the operations of Nature become to our understanding. The surprising simplicity and unity of Nature in her varied phenomena is one of the mature products of scientific study. The most scientific thinker, then, is only trying to reduce to a simple explanation the same puzzle which confronted the infant in its cradle. The problem is the same and the method similar.

It is plain that the process of classifying objects and phenomena in Nature and in society is the beginning of scientific knowledge. A child begins to learn as soon as it notices the resemblances in things and arranges them into groups. It will appear later that the mind does not follow a strictly logical method in gaining its groups, that it falls into natural errors and misconceptions; but in spite of these eccentric movements, the general trend is toward classifications and toward the language symbols that express them. (In this power to associate, classify, and symbolize the products of experience in words is seen the marked difference between man and the animals.) The latter have little power to compare and generalize, that is, to think. On a still higher plane, the difference between a careless, loose observer and a well-trained scientific thinker is largely a difference in accuracy, in inductive and deductive processes.

The important thing for the teacher to determine is whether this inductive or concept-building tendency furnishes any solid ground upon which to base the work of instruction. Admitting that it is a natural process, common to both old and young in acquiring knowledge, perhaps it can be neglected because it will take care of itself. If it is self-active, needing no artificial stimulus, let it alone. On the contrary, if in a healthy pursuit of knowledge, it brings the varied mental powers into a natural sequence where they will strengthen and support one another, it should be studied and used by teachers. It would be very commonplace to say that each of the faculties or activities involved in the induction process should be disciplined and strengthened by school studies. There is but little difference of opinion on this subject, though some would lay more stress upon sense training, some on memory, some on reasoning. The ground for this general conviction is the notorious fact that with children every one of these acts is performed in a faulty and superficial manner. The observations of children are very careless and unreliable. Even adults are extremely negligent and inaccurate in their observations of natural objects, persons, and phenomena. But the mental powers brought to bear in observation are simple and elementary. The exercise of higher mental powers, such as analysis, comparison, judgment, and reasoning, is prone to be still more accidental and erroneous.

Acknowledging, then, the necessity for training all these powers, how can it best be done? Not by delegating to each study the cultivation of one kind or set of mental activities, but by observing that the same general process underlies the acquisition of knowledge in each subject, and that all the kinds of mental life are brought into action in nearly every study. In short, the inductive process is a natural highway of human thought in every line of study, bringing all the mental forces into an orderly, successive, healthful activity. We may yet discover that the inductive process not only gives the key to an interesting method of mastering different branches of knowledge, but in developing mental activity it brings the various mental powers into a strong natural sequence. One of the great ends of intellectual culture is gradually to transform this careless, unconscious, inductive tendency in children into the painstaking and exact scrutiny of the student, and later of the specialist.

Although the inductive process is a common highway of thought in all stages of intellectual growth from childhood to maturity, certain parts of the road are much more frequently travelled in childhood, and still others in youth and maturity. It is the work of pedagogy to adapt its materials to these changing phases of soul life in children. In the analysis of the inductive and deductive processes we desire to come at the solution of this problem.

Considered as a whole, there is a simple phase of the inductive process which is best explained by the terms "absorption" and "reflection." It appears in the study of simple as well as of complex objects, and indicates clearly the fundamental rhythm of the mind in acquiring and elaborating its knowledge. This action of the mind is a shuttle-like movement, a constant running back and forth between two extremes, absorption and reflection. We will test this statement upon examples. When we are in the mood for learning, let some new object, a saw-mill, attract the attention. A quick general glance at the place and its surroundings tells us what it is. Now trace the operation of the mill as it draws up the logs singly from the rafts lying on the margin of the river and converts them into lumber. You observe first how the logs are carried up an inclined slide by means of an endless chain and hooks, into the mill. You examine this first piece of machinery and notice its mode of action. As the logs enter the upper story of the mill, they are thrown by heavy levers to either side and roll down toward the saws. Here is another piece of machinery in its proper place. Having been stripped of the loose pieces of bark, the logs are grasped by another set of iron hands, lifted firmly to the carriage and passed to the circular or band saw, which takes off the side slabs and squares them for the gang-saw. The squared logs are then carried along over rollers and collected before the gang-saws. From two to four of them are clasped firmly together and then forced up against the teeth of the parallel group of saws, issuing from them as a batch of lumber. The boards are then passed on to a set of men at small circular saws, by whom they are sorted and the edges trimmed, while still others with trucks carry them to the yard for stacking.

Take note of the operation of the mind as it passes from one part of the machinery to another. Each part is first examined by itself to get its construction and method. Then its relation to what precedes and what follows is noted. Finally, in review, you survey the whole process in its successive stages, and understand each part and its relation to the whole and to the purpose of the mill. We might call this an analysis and synthesis of the process of making lumber, or, in other words, absorption and reflection. In the observation of such a complex piece of machinery as a large mill, the mind swings back and forth many times between absorption in the study of parts and reflection upon their relation to each other.

Having examined the mill in detail, and grasped its parts as a connected whole, the next step is to observe its relation to the river, to the rafts and rafting-boats, and, farther back, to the pineries and logging-camps up the river. (Northern Minnesota and Wisconsin.) The occupation and sights along the Upper Mississippi and its head waters, the pineries, and even the spring floods, are intimately connected, causally, with the saw-mills and lumber yards lower down. Or going in the opposite direction from the saw-mill, we follow the lumber till it is used in the various forms of construction. Some of it enters the planing-mills and is converted into mouldings, finishing-lumber, sashes, blinds, etc. In all forms it is loaded upon the cars, and shipped westward to be used in the construction of houses and bridges.

Before we get through with the line of thought engendered by observing the saw-mill, we have canvassed the whole lumber industry from the pineries to the plans of architects and builders in the actual work of construction. Not only has there been this progress of the mind from one object or machine to another of a series connected by cause and effect, but there has been also a constant tendency to pass from the individual machines of which the series is composed to the classes of which these objects are typical. A circular saw or a gang-saw is each typical of a class of saws. The same is true of each part of the machinery, as well as of the saw-mill or planing-mill considered as a whole. Each of these objects, whether simple or complex, suggests others, similar, which we have observed or seen represented in pictures. Each part of the machinery in turn becomes the centre of a set of comparisons leading from the concrete object in question to the general notion of the class to which it belongs. For example, the steam engine in a mill is typical of all stationary engines used for driving machinery. But the parts of the engine are also typical of similar parts in other engines and machines, as the drive-wheel, cylinder, boiler, etc.

In all these cases we become absorbed in one thing for a while, only to recover ourselves and to reflect upon the thing in its wider relations, either tracing out connections of cause and effect, as in a series of machines, or passing from the single example to the class of which it is typical, — absorption and reflection. The mind swings back and forth like a pendulum between these two operations. Herbart, who closely defined this process, called it the mental act of breathing, because of the constancy of its movement. As regularly as the air is drawn into the lungs and again expelled, so regularly does the mind lose itself in its absorption with objects only to recover itself and reflect upon them.

In the inspection of a large printing-press in one of our newspaper publishing houses we meet with a similar experience. The attention becomes centred upon the press for a close analysis and synthesis of its parts. The cogs, wheels, rollers, inking-plate, the cases for the type, the application of the power, the springs and levers, each part receives a close inspection, and the secret of its connection with other parts is sought for.

There is a vigorous effort not only to understand each part, but also the connection of the whole. The shuttle-like movement of the mind back and forth between the parts, absorbed for a moment, reflecting for a moment, continues until the complex mechanism is understood. When this process has been satisfactorily completed, we are ready to turn our minds again to the other objects and rooms of the printing establishment. The work of the compositors, setting up different kinds of type, the proof-reading, the editorial work, the reporters, all come in for a share of attention. The reporters lead us to the great world outside, whose happenings are brought here for publication. On the other hand, following the distribution of papers as they issue from the press, we think of newsboys, news-stands, mail-service, railroads, and postoffices. But the inspection of a printing-press also leads the thoughts in other directions and suggests other presses, great and small, in other times and places, other printing establishments, until the whole business of printing and publishing books and papers springs into the thought. If we desire to understand clearly the business of publishing a newspaper, we must enter into an observation of the parts of the process from the collection of its news to its distribution by the mails and carriers. Besides noting these parts we must observe their causal connection with each other and the rôle that each plays in the economy of the whole. The causal series thus clearly outlined produces insight into an occupation, while every typical machine or appliance is one of a cross series intercepting the original series.

The acquisition and assimilation of knowledge in different subjects will be found to exhibit the mental states of absorption and reflection as just illustrated. Observe the manner in which we study a poem. It is first read and interpreted sentence by sentence, glancing from verse to verse to get the connections. When the whole piece has been read and understood in its parts and connections, the suggested lines of thought are taken up and followed out in their wider applications. Take, for example, the "Burial of Moses," and in the proper analysis and study of the poem such a process of absorption and reflection is observable. In tracing the biography of John Quincy Adams, or of Alexander Hamilton, the facts of personal experience and action at first absorb the attention from step to step in the study of his life. But reflection on the bearings of the personal events, upon contemporaries and upon public affairs, is noticed all along. The same mental process is observed in studying a battle in history, a sentence in grammar, a squirrel in natural history, or a picture in art.

The effect of such mental absorption and reflection is to build up concepts. Series of causally related parts are also formed, but each series in the end becomes a more complete complex concept, that is, a representative of many similar series. The inspection of one printing establishment suggests others, which are brought into comparison, till the general notion "publishing house" is more clearly conceived. The same is true in the lumber trade. The concept "lumber business" is not confined to Minneapolis or Chicago, but is common to the great lake region, Maine, Washington, Norway, and other countries. Concepts become more varied and complex with the advance of studies, and there is scarcely anything we learn by observation or reflection that does not ultimately illustrate and build up our concepts. The observation of even the miscellaneous objects in a large city leads to a variety of concepts, and in the end, by comparison, to the general notion "city."

How strong the concept-creating tendency of all experience and thought is, can be seen in the words of language. The processes of thought become petrified in language. All progress in knowledge and acquisition of new ideas is reflected in language by an increase of words. But an examination of words in common use will show that they are nearly all the names of concepts. Proper names are the principal exception. Every common noun, verb, adjective, adverb, and preposition is the name of a concept; for example, horse, beauty, to steal, running, over, early, yellow, grape, ocean, etc. To understand these concepts there must be somewhere a progress from the individual to the abstract, an induction from particulars to a general concept.

Abstract or general notions cannot be acquired at first hand without specific illustrations. Even where the deductive process is supposedly employed, a closer examination will uncover the concrete or individual illustrations in the background, and until these are reached the concept has no clear meaning. The concrete examples, whether introduced sooner or later by way of explanation, are the real basis of the understanding of the concept. It is customary to invert the inductive process and to drive it stern forward through grammar, geography, and other studies. Take, for example, the word "boomerang" as it comes up in a geography or reading lesson. Webster's dictionary, which is recommended to children as a first resort in such difficulties, calls it "A remarkable missile weapon used by the natives of Australia." This gives a faint notion by using the familiar word "weapon." The picture accompanying the word in the dictionary gives a more accurate idea because nearer the concrete. The best possible explanation would be a real boomerang thrown by a native South Sea Islander. In the absence of these, a picture and a vivid description are the best means at our disposal. The common mistake is in learning and reciting the definition while neglecting the concrete basis. By way of further illustration, try to explain to children, who have never heard of them before, the egg-plant, palm tree, cactus, etc.

It would be of interest to inquire into the process of concept-building in each of the school studies, where it appears under quite varying forms. The natural sciences are perhaps the best examples of concept-building from concrete materials, advancing regularly through a series of concepts from the individuals and species to the most general classes of plants, animals, etc. In chemistry and physics the laws and general principles are based on substances, experiments, and processes observable by the senses. Grammar and language, when studied as a science, advance from concept to concept through etymology and syntax. In geography and history the concepts are less definite and more difficult to formulate, and yet there are many typical ideas which are to be developed and illustrated in each of these studies: in history, for example, colony, legislature, governor, general, revolution, institutions and customs, political party, laws of development, causal relations, inventions, etc.; in geography, continents, oceans, forms of relief, kinds of climate and causes, occupations, products, commerce, etc. The fundamental truths and relations and rules of arithmetic must be developed from objects and illustrations. Reading, spelling, and writing are arts, not sciences, and are more concerned with skill in execution than with the acquisition of a body of scientific truths. And yet certain general truths are emphasized and applied in these studies.

Much needless confusion has been caused by raising the question where to begin in learning. Do we proceed from the whole to the parts, or from the parts to the whole? In making the acquaintance of sense-objects it seems clear that we first perceive wholes (somewhat vaguely and indefinitely). The second impulse is to analyze this whole into its parts, then recombine them (synthesis) into a whole, which is more definitely and fully grasped. A house, for example, is generally first perceived as a whole; and later it is examined more particularly as to its materials, rooms, stairways, conveniences, furnishings, etc. The same is true with a mountain, a butterfly, a man. Thus far we have proceeded from the whole to the parts and then back again,—analysis and synthesis. The next movement is from this whole or object toward a group of similar objects, a class notion. By comparing one thing with others similar, a class notion is formed which includes them all. Each individual is a whole, but is also a type of the entire group. The general mental movement is successively in two directions from any particular object; first, from the whole to the parts, then grasping this whole in a richer, fuller sense, the mind seeks for relations which bind this object with others similar into a group, a more complex product, a concept. There may appear to be an exception to this rule in the case of a city, a continent, a railroad, or any concrete object so large and complex that it cannot be grasped by a single effort of sense perception. But even here it is usual with us first to represent the whole object to our thought by means of a sketch, map, or figure of speech, so as first to get a quick survey of the whole thing. In history, also, we first grasp at wholes, then enter into a detailed account of an event, a campaign, a voyage, a revolution, etc. There are many complex wholes in geography and history with which it is not wise to begin, because it requires a long and painful effort to get at the notion of the whole. The wholes we have in mind are those which can be almost instantly grasped. Not, for example, an outline of American history or of the world's history. The choice of suitable wholes with which to begin is based upon the child's interest and apperceptive powers. Having thus examined into the general nature of the inductive process and the extent of its application to school studies and to other forms of acquiring knowledge, we are led to a closer practical discussion of each of the two chief stages of induction: first, observation or intuition; that is, the direct perception, through the senses or through consciousness, of the realities of the external world and of the mind; second, association of ideas with a view to generalizing and forming concepts.

Intuition[1] implies object lessons in a wide sense.

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[1] Intuition is popularly used in a sense different from the above. We are in need of a word which has the same meaning as the German word *Anschauung*, for which there is no popular equivalent in English. Intuition, as defined by Webster, is nearly the same: "direct appre-

By object lessons we usually mean the study of things in nature perceived through the senses. But it is necessary to extend the idea of object lessons beyond the objects and phenomena of the physical world, to which it has been usually limited. It includes perception of our own mental states. These direct experiences of our own inner states are the primary basis of our understanding of other people's feelings, mental states, and actions. In short, an understanding of the phenomena of individual life (the acts of persons), of society, and of history is based upon a knowledge of our own feelings and mental acts, and upon the accuracy with which we have observed and interpreted similar things in other persons. We have already seen that a right appreciation of companions, biographies, social life, and history is the strongest of psychological forces in its formative influence upon character. For this reason, also, history includes the first and most important body of school studies. But object lessons drawn from physical nature do not measurably qualify us for a better appreciation of individual and social life and action. The fundamental illustrative materials for history are drawn from another source, from the depth of the heart and inner experience of each

hension, or cognition; immediate knowledge, as in perception or consciousness."

For a discussion of this term, see Quick's "Educational Reformers," p. 361, Appleton's edition.

person. Many words in our school books can be illustrated and explained by objects and activities in physical nature, but a large part of the words in common use in our readers and school books can be explained by no external objects. They depend for their interpretation upon the child's own feelings, desires, joys, griefs, etc., and upon similar phenomena observed in others.

Object lessons in this liberal sense point to the direct exercise of the senses and intuitions in the acquisition of experience of all sorts. They include the objects, persons, and events that we see around us, and our own experiences in ordinary life — the grass, plants, trees, and soils; the animals, wild and tame, with their structure, habits, and uses; the rocks, woods, hills, streams, seasons, clouds, heat, and cold. There is also the observation of devices and inventions: tools, machinery, and their workings; the different raw and manufactured products, with their ways of growth and transformation. Besides these are the various kinds and dispositions of men, different classes and races of people, with great variety of character, occupation, and education. Their actions, modes of dress, and customs are included. But we have many other primary and indispensable lessons to learn from the playground, the street, from home and church, from city and country, from travel and sight-seeing, from holidays and work days, from sickness, and healthful excursions. Even a child's own tempers, faults, and successes are of the greatest value to himself and to the teacher in a proper self-understanding and mastery. By object lessons, therefore, we mean all that a child becomes conscious of through the direct action of his senses and of his mind upon external nature or inner experience. It is desired that a child's knowledge in all direct experience be simple, clear, and according to the facts. All words that he uses become only signs of the realities of his experience. Every word stands for a potent thought in his own life history. Of course, object lessons in this rich and real sense cannot be confined to such few objects — birds, leaves, models, and straws — as can be brought into a schoolroom. All the world, especially the outside world, becomes

"A complex Chinese toy
Fashioned for a barefoot boy."

Many of the most interesting objects and phenomena in nature and of man's construction cannot be observed in the schoolroom at all; for instance, the river, the bridge, the forest, the flight of birds, the sunrise, the storm, the stars, etc. Still they must know these very things, and how to use them better in constructing the mind's treasures than they are wont to do. In reading, grammar, geography, arithmetic, and nature study, we desire to ground school discussions daily upon the clear facts of experience, of personal observation. We need to clear up all confused and faulty perceptions, and to stimulate children to make their future observations more reliable.

We have already seen the importance of object lessons in this full and real sense to interest. Interest in every study is awakened and constantly reënforced by an appeal, not to books, but to life. Much of the dull work in arithmetic, geography, and other studies is due to the neglect of these real, illustrative materials.

Of the six great sources of interest (Herbart's), three, the empirical, the æsthetic, and the sympathetic, deal entirely with concrete objects or with individuals, while even the speculative and social interests are often based directly upon particular persons or phenomena. In addition to this it may be said that the interests of children are overwhelmingly with the concrete and imaginative phases of every subject, and only secondarily with general truths and laws. The latter are of greater concern to older children and adults. Object lessons therefore contain a life-giving element that should enter into every subject of study.

Nor should these interesting, illustrative object lessons be limited to the lower grades. They contain the combustible material upon which an abiding interest in any subject is to be kindled. There are indeed other and perhaps higher sources of interest, but they are largely dependent upon these original springs that flow from the concrete beginnings. In the second place, object lessons supply a stock of primary ideas which form the foundation of all later progress in knowledge. This is not a question of interest merely, but of understanding, of capacity to get at the meaning of an idea. Concepts are not the raw materials with which the mind works, but they are elaborated out of the raw products furnished by the senses and other forms of intuition. As cloth is manufactured out of the raw cotton and wool produced on the farm or in southern fields, so concepts are a manufactured article, into whose texture materials previously gathered enter. Concepts do not grow up directly from the soil of the mind any more than ready-made clothing grows on the bushes or on the backs of the wearers. Concepts must be made out of stuff that is already in the mind, as woollen blankets are spun and woven out of fleeces. Our present contention is, that the mind shall be filled up with the best quality of raw stuff, otherwise there will be defect and deficiency in its later products. The stuff out of which concepts are built is drawn from the varied experiences of life. On account of this intimate relation between the realities of life and school studies, they cannot be separated. Every branch, especially in elementary studies, must be treated concretely and be built up out of sense materials. Every study has its concrete side, its illustrative materials, its colors of individual things taken from life. Every study has likewise its more general scientific truths and classifications. The prime mistake in nearly all teaching and in the text-book method is in supposing that the great truths are accessible in some other way than through the concrete materials that lie properly at the entrance. The text-books are full of the abstractions and general formulæ of the sciences; but they can, in the very nature of the case, deal only in a meagre way with the individual objects and facts upon which knowledge in different subjects is based. This necessary defect in a text-book method must be made good by excursions, by personal observation, by a constant reference of lessons to daily experience outside of school, by more direct study of our surroundings, by the teacher perfecting himself in this kind of knowledge and in its skilful use.

There was a current belief at one time that object lessons should form a special study for a particular period of school life, namely, the first years. It was thought that sufficient sense-materials could be collected in two or three years to supply the whole school curriculum. But this thought is now abandoned. Children in the earlier grades may properly spend more time in object study than in later grades, but there is no time in school life when we can afford to cut loose from the real world. There is scarcely a lesson in any subject that cannot be clarified and strengthened by calling in the fresh experiences of daily life.

The discussion of the concept and of the inductive process has shown that concepts cannot be found at first hand. There must be observation of different objects, comparison, and grouping into a class. A person who has never seen an elephant, nor a picture of one, can form no adequate notion of elephants in general. We can by no shift dispense with the illustrations. The more the memory is filled with vivid pictures of real things, the more easy and rapid will be the progress to general truths. Not only are general notions of classes of objects in nature or of personal actions built up out of particulars, but the general laws and principles of nature and of human society must be observed as illustrated in real life to be understood. We should have no faith in electricity if it were simply a scientific theory, if it had not demonstrated its power through material objects. The idea of cohesion would never have been dreamed of, if it had not become necessary to explain certain physical facts. The spherical form of the earth was not accepted by many even learned men until sailors with ships had gone around it. Political ideas of popular government which a few centuries ago were regarded as purely utopian, are now accepted as facts because they have become matters of common observation. The circulation of the blood remained a secret for many centuries, because of the difficulties of bringing it home to the knowledge of the senses. These examples will show how difficult it is to go beyond the reach of sense experience. Even those philosophers who have tried to construct theories without the safe foundation of facts have labored for naught. The more our thought is checked and guided by Nature's realities, the less danger of inflation with pretended knowledge. Bacon found that in this tendency to theorize loosely upon a slender basis of facts, was the fundamental weakness of ancient philosophy. Nature, if observed, will reiterate her truths till they become convincing verities, while the study of words and books alone produces a quasi knowledge which often mistakes the symbol for the thing.

Having this thought in mind, Comenius, more than two and a half centuries ago, said: —

"It is certain that there is nothing in the understanding which has not been previously in the senses, and consequently to exercise the senses carefully in discriminating the difference of natural objects is to lay the foundation of all wisdom, all eloquence, and of all good and prudent action. The right instruction of youth does not consist in cramming them with a mass of words, phrases, sentences, and opinions collected from authors. In this way the youth are taught, like Æsop's crow in the fable, to adorn themselves with strange feathers. Why should we not, instead of dead books, open the living book of Nature?

Not the shadow of things, but the things themselves, which make an impression upon the senses and imagination, are to be brought before the youth."

James, in his "Talks to Teachers," p. 146, says: —

"During the first seven or eight years of childhood the mind is most interested in the sensible properties of material things. Constructiveness is the instinct most active; and by the incessant hammering and sawing, and dressing and undressing dolls, putting of things together and taking them apart, the child not only trains the muscles to coördinate action, but accumulates a store of physical conceptions which are the basis of his knowledge of the material world through life. Object-teaching and manual training wisely extend the sphere of this order of acquisition. Clay, wood, metals, and the various kinds of tools are made to contribute to the store. A youth brought up with a sufficiently broad basis of this kind is always at home in the world. He stands within the pale. He is acquainted with Nature, and Nature, in a certain sense, is acquainted with him. Whereas the youth brought up alone at home, with no acquaintance with anything but the printed page, is always afflicted with a certain remoteness from the material facts of life, and a correlative insecurity of consciousness, which make of him a kind of alien on the earth in which he ought to feel himself perfectly at home.

"To have grown up on a farm, to have haunted a carpenter's and blacksmith's shop, to have handled horses and cows and boats and guns, and to have ideas and abilities connected with such objects, are an inestimable part of youthful acquisition. After adolescence it is rare to be able to get into familiar touch with any of these primitive things. The instinctive propensions have faded, and the habits are hard to acquire.

"Accordingly, one of the best fruits of the 'child-study' movement has been to reinstate all these activities to their proper place in a sound system of education. Feed the growing human being, feed him with the sort of experience for which from year to year he shows a natural craving, and he will develop in adult life a sounder sort of mental tissue, even though he may seem to be 'wasting' a great deal of his growing time, in the eyes of those for whom the only channels of learning are books and verbally communicated information."

This passage suggests that in the effort to get a sound concrete basis for ideas in experience we have gone a step beyond the old idea of observation and sense training. A solid and practical education demands more than the mere observation of objects as a basis for ideas. The manual training and constructive exercises which are being gradually introduced into many schools are believed to be a better means of putting a child in possession of his powers, both physical and mental, than any kind of mere study, whether of books or of objects. A child will come closer to realities, will have a keener appreciation of the qualities of objects, by handling, building, and constructing, than by mere observation.

Still more significant, perhaps, is the statement of psychologists that all ideas have a tendency to produce motor action, and that the development of the brain tracts themselves, physiologically speaking, depends largely upon the freedom and variety of outgoing physical activity. From this point of view the very basis of a healthy brain development, together with the complete command of bodily powers by the mind, is found in an abundance of physical activity. This is a matter of rapidly growing importance, because many of our town and city boys have no adequate opportunity for the development in various directions of their physical powers. It is incumbent upon the school in some way or other to supply this fundamental physical basis of correct thinking and give the boys and girls a better command of themselves and of the world around them by the various forms of manual training and industrial, constructive work.

There has always been a strong tendency in the schools to teach words, definitions, and rules without a sufficient knowledge of the objects and experiences of life that put meaning into these abstractions. The result is, that all the prominent educational reformers have pointedly condemned the practice of learning words, names, etc., without a knowledge of the things signified. The difference is like that between learning the names of a list of persons at a reception, and being present to enter into acquaintance and conversation with the guests. The oft-quoted dictum of Kant is a laconic summary of this argument, "General notions (concepts) without sense-percepts are empty." The general definition of composite flowers means little or nothing to a child; but after a familiar acquaintance with the sunflower, dandelion, thistle, etc., such a general statement has a clear meaning. Concepts without the content derived from objects are like a frame without a picture, or a cistern without water. The table is spread and the dishes placed, but no refreshments are supplied.

Having completed the discussion of intuition, including object lessons, that is, the preparatory step to the inductive process, we reach the second, reflection and survey. We are seeking for a general term that covers the several steps in the latter part of the inductive process. It includes comparison, classification, and abstraction. It may be discussed from the standpoint of "association of ideas," and contributes directly to concentration.

We have in mind, chiefly, that thoughtful habit which is not satisfied with simply acquiring a new fact or set of ideas, but is impelled to trace them out along their various connections. We have to do now not with the acquisition but with the elaboration and assimilation of knowledge. The acquisition of knowledge in the ordinary sense is one thing; its elaboration in a full sense sets up a standard of progress which will put life into all school work and reach far beyond it, and in fact is limited only by the individual capacity for thought. In school, in reading and study, we have been largely engaged in acquiring knowledge on the principle that "knowledge is power." But no practical man needs to be told that much so-called school knowledge is not power. Facts which have been simply stored in the memory are often of little ready use. It is like wheat in the bin, which must first pass through the mill and change its entire form before it will perform its function. Facts, in order to become the personal property of the owner, must be worked over, sifted, sorted, classified, and connected. The process of elaborating and assimilating knowledge is so important that it requires more time and pains than the first labor of acquisition. Philosophers will admit this at once, but it is hard for us to break loose from the traditions of the schoolmasters. The mind is not in all respects like a lumber-yard. It is, to be sure, a place for storing up knowledge, just as the yard is a deposit for lumber. But there the analogy ceases, and the mind begins to resemble more the contractor and builder. There is planing, sawing, and hammering; the materials collected are prepared, fitted, and mortised together, and a building fit for use begins to rise. Knowledge also is for use, and not primarily for storage. That simple acquisition and quantity of knowledge are not enough, is illustrated by the analogy of an army. Numbers do not make an army, but a rabble. A general first enlists raw recruits, drills and trains them through a long period, and finally combines them into an effective army. Many of our ideas when first received are like disorderly, raw recruits. They need to be disciplined into proper action and to ready obedience.

In connection with assimilation, the analogy between the stomach and the mind is of still greater interest. The food received into the stomach is taken up by the organs of digestion, assimilated, and converted into blood. The process, however, takes its course without conscious effort or coöperation. Knowledge likewise enters the mind, but how far will assimilation go on without conscious effort? If kept in a healthy state, the organs of digestion are self-active. Not so the mind. Ideas entering the mind are not so easily assimilated as the food materials that enter the stomach. A cow chews her cud once, but the ideas that enter our minds may be drawn from their receptacle in the memory and worked over again and again. Ideas have to be put side by side, separated, grouped, and arranged into connected series. There is, no doubt, some tendency in the mind toward involuntary assimilation, but it greatly needs culture and training. Many people never reach the thinking stage, never learn to survey and reflect. The tendency of the mind to work over and digest knowledge should receive ample culture in the schools. There is a mental inertia produced by pure memory exercise that is unfavorable to reflection. It requires an extra exertion to arrange and organize facts, even after they are acquired. But when the habit of reflection has been inaugurated, it adds much interest and value to all mental acquisitions.

There are also well-established principles which guide the mind in elaborating its facts. The laws of the association of ideas indicate clearly the natural trend of mental elaboration. The association of things because of contiguity in time and place is the simplest mode. The classification of objects or activities on the basis of resemblance is the second form, and that upon which the inductive process is principally founded. In the third case, objects and series are easily retained in memory when the relation of cause and effect is perceived between them. These natural highways of association, especially the second and third, should be frequently travelled in linking the facts of school study with each other. Indeed, the outcome of a rational survey of an object or fact in its different relations is an association of ideas, which is one of the best results of study. Such connections of resemblance and difference, or of cause and effect, are abundant and interesting in the natural sciences and physical geography, also in history and languages.

The Herbartians draw an important distinction between psychical and logical concepts or general notions. The psychical concept is worked out naturally by a child or an adult as a result of the chance experiences of life. It is usually a work of accident, is incomplete, faulty, and often misleading. The logical concept, on the other hand, is scientifically correct and complete. It includes all the common characteristics of the group and excludes all that is not essential. It is a product of accurate and mature thinking. We all possess an abundance of psychical concepts drawn from the miscellaneous experiences of life. It is a large share of the school work, as we have seen, to develop logical concepts out of these immature and faulty psychical concepts. A child is disposed to call tadpoles fishes; and later, porpoises and whales are faultily classed with the fishes in the same way. Nearly all our psychical concepts are subject to such loose and faulty judgments. Even where one is accurate in his observations, the conclusions naturally drawn are often wrong. For example, a child that has seen none but red squirrels would naturally think all squirrels red, and include the quality red in his general notion. Most of our empirically derived notions are spotted with such defects. What relation have these facts to induction? We claim that general notions should be experimentally formed, that is, by a gradual collection of concrete or illustrative materials, and that the logical concepts are the final outcome of comparison and reasoning toward conclusions. In other words, we must begin with the psychical concepts with all their faults; we must make mistakes and correct them as our experience enlarges, and gradually work out of psychical into logical methods and results. Our text-books usually give us the logical concept first, the rule, definition, principle, in its most complete and accurate statement. This does violence to the child's natural mental movement.

The final stage of induction is the formulation of the general truths, the concepts, principles, and laws which constitute the science of any branch of knowledge. These truths should be well formulated in clear and expressive language and mastered in this form. Moreover, the results reached, when reduced to the strict scientific form, are the same in the inductive methods as in the deductive or common text-book method. Not that the effect on the mind of the learner is the same, but the body of truth is unaltered. The general truths of every subject can be easily found well arranged in text-books. But we are more anxious to know how the youth may best approach and appreciate these truths, than simply to see them stored in the mind in well-arranged form.

A rich man, in leaving a fortune to his son, would more than double the value of the inheritance if he could teach him properly to appreciate wealth and form in him the disposition and ability to use it wisely. In the same way the best part of knowledge is not simply its possession, but an appreciation of its value. The method of reaching scientific knowledge through the inductive process, that is, by the collection and comparison of data with a view to positive insight, will give a greater meaning to the results. Interest is awakened and self-activity exercised at every step in the progress toward general truths. By the reflective habit these truths will be seen in their origin and causal connection, and the line of similarity, contrast, causal relation, analogy, and coincidence will be thoughtfully traced.

Possibly the progress toward formulated knowledge will be less rapid by induction, but it will be real progress with no backward steps. It may well be doubted whether, with average minds, real scientific knowledge is attainable except by a strong admixture of inductive processes. Perfection in the form and structure of our concepts is not to be attained by children nor by adults, but the ideal of scientific accuracy in general notions is to be kept constantly in view and approximated to the extent of our ability.

De Garmo, in his "Essentials of Method," p. 75, says: —

"This, then, is the great merit of Pestalozzi, that whereas the men of his time began instruction with the abstract, with words whose content was unknown to the children, he began with the individual things, from which alone the abstractions could gain any significance in the minds of the pupils. Instead of presupposing an experience, he supplied one. Instruction is ever swinging between two extremes, underived generals, and ungeneralized particulars. Undue conservatism tends to the former, and unthinking radicalism to the latter. Pestalozzi struck the golden mean, when he said the mind must ever rise from clear individual to distinct general notions."

Spencer, in his chapter on "Intellectual Education," says: —

"To say that our lessons ought to start from the concrete and end in the abstract, may be considered as in part a repetition of the foregoing (from the simple to the complex). Nevertheless, it is a maxim that needs to be stated; if with no other view, then with the view of showing in certain cases what are truly the simple and the complex. For, unfortunately, there has been much misunderstanding on this point. General formulas which men have devised to express groups of details, and which have severally simplified their conceptions by uniting many facts into one fact, they have supposed must simplify the conceptions of the child also; quite forgetting that a generalization is simple only in comparison with the whole mass of particular truths it comprehends — that it is more complex than any one of these truths taken singly — that only after many of these single truths have been acquired does the generalization ease the memory and help the reason — and that to the child not possessing these single truths it is necessarily a mystery. Thus confounding two kinds of simplification, teachers have constantly erred by setting out with 'first principles,' a proceeding essentially, though not apparently, at variance with the primary rule; which implies that the mind should be introduced to principles through the medium of examples, and so should be led from the particular to the general — from the concrete to the abstract."

Laurie, in his "Institutes of Education," says: —

"Train the young in the formation of general concepts, and in the analysis of those they have immaturely formed. With this object in view obey the following rule: —

"Rule. — Teach generalizations as generalizations; that is to say, proceed from the particular to the general, from the concrete individual to the abstract.

"The tradition-bound teacher of language will say that the abstract syntactical rule of grammar can be learned quite easily by boys. Of course it can — as words; but it can never be anything but a meaningless collocation of words until it is filled with the concrete individual 'instances' which the boy is daily encountering in his studies. And inasmuch as the human mind, as a matter of fact, gets its general and abstract proposition (even if it has to do so retrospectively, *i.e.* by going back) through particulars, our duty is to lead it to its general proposition along the road or way of particulars. The mind will thus make easier and more solid and more rapid progress in the knowledge of a subject, and will also have an intellectual interest in the subject. But these are not the sole, nor yet the chief, advantages; for it is only by following the way of reason that we can truly train and discipline reason to the sound and effective exercise of its powers on all the affairs of life."

After all, deduction performs a much more important part in the work of building up concepts than the previous discussion would indicate. As fast as psychical concepts are formed we clamber upon them and try to get a better view of the field around us. Like captured guns, we turn them at once upon the enemy and make them perform service in new fields of conquest. If a new case or object appears, we judge of it in the light of our acquired concepts, no matter whether they are complete and accurate or not. This is deduction. We are glad to gain any vantage ground in judging the objects and phenomena constantly presenting themselves. In fact, it is inevitable that inductive and deductive processes will be constantly dovetailed into each other. The faulty concepts arrived at are brought persistently into contact with new individual cases. They are thus corrected, enlarged, and more accurately grasped. This is the series of mental stepping-stones that leads up gradually to logical concepts. The inductive process is the fundamental one, and deduction comes in at every step to brace it up. This is only another illustration that mental processes are intimately interwoven, and, except in thought, not to be separated. In the discussion of apperception in the following chapter we shall see that, in the process of gaining knowledge, our acquired ideas and concepts play a most important rôle. They are really the chief assimilating agencies. But in spite of all this we shall scarcely be led again to the standpoint that logical or scientific concepts should be the starting-point in the study of any subject.

CHAPTER VI

APPERCEPTION

We have now to deal with a principle of pedagogy upon which all the leading ideas thus far discussed largely depend for their realization. Interest, concentration, and induction set up requirements relative to the matter, spirit, and method of school studies. Apperception is a practical principle, obedience to which will contribute daily and hourly to making real in school exercises the ideas of interest, concentration, and induction.

We observe in passing that the important principles already discussed stand in close mutual relation and dependence. Interest aids concentration by bringing all kinds of knowledge into close touch with the feelings. Interest puts incentives into every kind of information so as to arouse the will, which, in turn, unifies and controls the mental actions. But concentration has a reflex influence upon interest, because unity and conscious mastery give added pleasure to knowledge. Induction is a natural, psychological method of acquiring and unifying knowledge in an interesting way. Apperception, in turn, is a principle of mental action which puts life and interest into inductive and concentrating processes. Every hour of school labor illustrates the value of apperception, and teachers should find in it a constant antidote to faulty methods.

3 Apperception is said to contain nothing new in psychology, and is thought identical with certain phases of the association of ideas. It is closely akin to what we have long known as assimilation of ideas, and it involves especially the interaction of ideas upon one another by which new-entering experiences are clarified and incorporated into old masses of thought. Professor James says, "Apperception corresponds to nothing peculiar or elementary in psychology, being only one of the innumerable results of the psychological process of the association of ideas, and psychology itself can easily dispense with the word, useful as it may be in pedagogics." Psychologists and older writers on pedagogy have been somewhat irritated by the frequent use of this new term, and especially by the importance attached to it. Its peculiar value lies in the sharper analysis of the elements of interpretation in the process of acquiring new ideas. This is significant because it strikes at the centre of the teaching process, at the very point of contact in the mind's struggle with ideas. Apperception also includes the action of the whole mind (knowing, feeling, and will) at any given moment, and is not limited to any fractional part like conception or memory or reason, analyzed out from the

rest. Apperception requires, therefore, that the teacher at every stage shall get the child's point of view, his whole mental attitude in approaching any difficulty. The child's whole ability and acquired knowledge can then be focussed upon the problem in hand. How to organize a child's mental resources and to keep them focussed most economically upon the variety of difficulties that arise in school, — this is the problem of apperception.

Apperception may be roughly defined at first as the process of acquiring new ideas by the aid of old ideas already in the mind. It makes the acquisition of new knowledge easier and quicker. Not that there is any easy road to learning, but there is a natural process which greatly accelerates the progress of acquisition, just as it is better to follow a highway over a rough country than to betake one's self to the stumps and brush. For example, if one is familiar with peaches, apricots will be quickly understood as a kindred kind of fruit, even though a little strange. A person who is familiar with electrical machinery will easily interpret the meaning and purpose of every part of a new electrical plant. One may perceive a new object without understanding it, but to apperceive it is to interpret its meaning by the aid of similar familiar notions.

If one examines a typewriter for the first time, it will take some pains and effort to understand its construction and use; but after examining a Remington, another kind will be more easily understood, because the principle of the first interprets that of the second. Suppose the Steppes of Russia are mentioned for the first time to a class. The word has little or no meaning, or perhaps suggests erroneously a succession of steps or benches. But we remark that the steppes are like the prairies and plains to the west of the Mississippi River, previously studied, covered with grass and fed on by herds. By awakening a familiar notion already in the mind and bringing it distinctly to the front, the new thing is easily understood. Again, a boy goes to town and sees a banana for the first time, and asks: "What is that? I never saw anything like that." He thinks he has no class of things to which it belongs, no place to put it. His father answers that it is to eat, like an orange or a pear, and its significance is at once plain by the reference to something familiar.

Again, two men, the one a machinist and the other an observer unskilled in machines, visit the machinery hall of an exposition. The machinist observes a new invention and finds in it a new application of an old principle. As he passes along from one machine to another he is much interested in noting new devices and novel appliances, and at the end of an hour he leaves the hall with a mind enriched. The other observer sees the same machines and their parts, but does not detect the principle of their construction. His previous knowledge of machines is not sufficient to give him the clew to their explanation. After an hour of uninterested observation he leaves the hall with a confused notion of shafts, wheels, cogs, bands, etc., but with no greater insight into the principles of machinery. Why has one man learned so much and the other nothing? Because the machinist's previous experience served as an interpreter and explained these new contrivances, while the other had no sufficient previous knowledge and so acquired nothing new. "To him that hath shall be given."

In the act of apperception the old ideas dwelling in the mind are not to be regarded as dead treasures stored away and only occasionally drawn out and used by a purposed effort of the memory, but they are living forces which have the active power of seizing and appropriating new ideas. Lazarus says they stand "like well-armed men in the inner stronghold of the mind ready to sally forth and overcome or make serviceable whatever shows itself at the portals of sense." It is, then, through the active aid of familiar ideas that new things find an introduction to soul life. If old friends go out to meet the strangers and welcome them, there will be an easy entrance and a quick adoption into the new home. At this point the older pedagogy emphasized the association of ideas as an aid to the memory, but apperception emphasizes the more vital process of interpretation.

But frequently these old friends who stand in the background of our thoughts must be awakened and called to the front. They must stand, as it were, on tiptoe, ready to welcome the stranger. For if they lie asleep in the penetralia of the home, the newcomers may approach and pass by for lack of a welcome. It is often necessary, therefore, for the teacher to revive old impressions, to call up previously acquired knowledge, and to put it in readiness to receive and welcome the new. The success with which this is done is often the difference between good and poor teaching.

We might suppose that when two persons look at the same object they would get the same impression, but this is not true at all. Where one person faints with fright or emotion, another sees nothing to be disturbed at. The old darky's fright upon his first view of a steamboat coming round the bend in the river is an illustration. In former ages people looked upon an eclipse with awe and dread; now the same appearance is witnessed with a pleased interest. Two travellers come in sight of an old homestead. To one it is an object of absorbing interest as the home of his childhood; to the other it is much like any other old farm-house. What is the cause of this difference? Not the house. It is the same in both cases. It is remarkable how much color is given to every idea that enters into the mind by the ideas already there. Some visitors at the World's Fair could tell almost at a glance to what states many of the buildings belonged; other visitors had to study this out on the maps and notices. One who is familiar with the history, architecture, products, the social habits and customs, of the different states is able to classify many of the buildings with ease. His previous knowledge of these states interprets their buildings. Mount Vernon naturally belongs to Virginia, Independence Hall to Pennsylvania, John Hancock's house to Massachusetts. In a still more striking manner a knowledge of foreign countries enables the observer to classify such buildings as the French, the German, the Swedish, the Japanese, etc. Again, in viewing any exhibit our enjoyment and appreciation depend almost entirely upon our previous knowledge, not upon our eyesight or our physical endurance. Many objects of the greatest value we pass by with an indifferent glance because our previous knowledge is not sufficient to give us their meaning.

If a dry-goods merchant, a horse jockey, and an architect pass down a city street together, what will each observe? The merchant notices all the dry-goods stores, their displays, and their favorable or unfavorable location. The jockey sees every horse and equipage; he forms a quiet but quick judgment upon every passing animal. The architect sees the buildings and style of construction. If, in the evening, each is called upon to give his observations for the day, the jockey talks of horses and describes some of the best specimens in detail, the merchant speaks of store-fronts and merchandise, the architect is full of elevations of striking or curious buildings. The architect and merchant remember nothing, perhaps, about the horses; the jockey, nothing of stores or buildings. Three people may occupy the same pew in a church; the one can tell you all about the music, the second the good points in the sermon, and the third the style and becomingness of the bonnets and dresses. Each one sees what he has in his own mind. A teacher describes Yosemite Valley to a geography class. Some of the children construct a mental picture of a gorge with steep mountain sides, but no two pictures are alike; some have mental pictures that resemble nothing in heaven above or earth below; some have constructed nothing at all, only the echo of a few spoken words. If the teacher, at the close of her description, could have the mental state of each child photographed on the blackboard of her schoolroom, she would be in mental distress. In presenting such topics to children, much depends upon the previous content of their minds, upon the colors out of which they paint the pictures. We are now prepared for a more accurate definition of apperception. Lindner's "Psychology," p. 124, translated by De Garmo, gives the following: —

"The transformation of a newer (weaker) concept by means of an older one surpassing the former in power and inner organization bears the name of apperception, in contrast to the unaltered reception of the same perception."

Lindner remarks further:—

"Apperception is the reaction of the old against the new—in it is revealed the preponderance which the older, firmer, and more self-contained concept groups have in contrast to the concepts which have just entered consciousness."

Again, on page 126, he says:—

"It is a kind of process of condensation of thought and brings into the mental life a certain stability and firmness, in that it subordinates new to older impressions, puts everything in its right place and in its right relation to the whole, and in this way works at that organic formation of our consciousness which we call culture."

Lange gives the following definition on page 13 of "Apperception":—

"Apperception may be defined as that interaction between two similar ideas or thought-complexes in the course of which the weaker, unorganized, isolated idea or thought-complex is incorporated into the richer, better digested, and more firmly compacted one."

Oftentimes, therefore, older ideas or thought masses, being clear, strong, and well-digested, receive a new impression to modify and appropriate it. This is especially true where opinions have been carefully formed after thought and deliberation. A well-trained political economist, for example, when approaching a new theory or presentation of it by a George or a Bellamy, meets it with all the resources of a well-stored, thoughtful mind, and admits it, if at all, in a modified form into his system of thought. Sometimes, however, a new theory, which strikes the mind with great clearness and vigor, is able to make a powerful assault upon previous opinions, and perhaps modify or overturn them. This is the more apt to be the case if one's previous ideas have been weak and undecided. In the interaction between the old and new, the latter then becomes the apperceiving forces. Upon the untrained or poorly equipped mind a strong argument has a more decisive effect than it may justly deserve. As we noticed above, new ideas, especially those coming directly through the senses, are often more vivid and attractive than similar old ones. For this reason they usually occupy greater attention and prominence at first than later, when the old ideas have begun to revive and reassert themselves. Old ideas usually have the advantage over the new in being better organized, more closely connected in series and groups; and having been often repeated, they acquire a certain permanent ascendency in the thoughts. In this interaction between similar notions, old and new, the differences at first arrest attention, then gradually sink into the background, while the stronger points of resemblance begin to monopolize the thought and bind the notions into a unity.

6 The use of familiar notions in acquiring an insight into new things is a natural tendency or drift of the mind. As soon as we see something new and desire to understand it, at once we involuntarily begin to ransack our old stock of ideas to discover anything in our previous experience which corresponds to this or is like it. For whatever is like it or has an analogy to it, or serves the same uses, will explain this new thing, though the two objects be in other points essentially different. We are, in short, constantly falling back upon our old experiences and classifications for the explanation of new objects that appear to us.

7 So far is this true that the most ordinary things can be explained only in the light of experience. When John Smith wrote a note to his companions at Jamestown and thus communicated his desires to them, it was unintelligible to the Indians. They had no knowledge of writing and looked on the marks as magical. When Columbus's ships first appeared on the coast of the New World, the natives looked upon them as great birds. They had never seen large sailing vessels. To vary the illustration, the art of reading, so easy to a student, is the accumulated result of a long collection of knowledge and experience. William James says: "It is the fate of every impression thus to fall into a mind preoccupied with memories, ideas, and interests, and by these it is taken in. Educated as we already are, we never get an experience that remains for us completely nondescript: it

always reminds of something similar in quality, or of some context that might have surrounded it before, and which it now in some way suggests. This mental escort which the mind supplies is drawn, of course, from the mind's ready-made stock. We conceive the impression in some definite way. We dispose of it according to our acquired possibilities, be they few or many, in the way of 'ideas.' This way of taking in the object is the process of apperception. The conceptions which meet and assimilate it are called by Herbart the 'apperceiving mass.' The apperceiving impression is engulfed in this, and the result is a new field of consciousness, of which one part (and often a very small part) comes from the outer world, and another part (sometimes by far the largest) comes from the previous contents of the mind."

There is a quick, automatic use of the apperception masses which is of great importance in practical affairs, and is much emphasized by writers on apperception. It is, however, little more than a form of the association of ideas. We often see a person at a distance and, by some slight characteristic of motion, form, or dress, recognize him at once. From this slight trace we picture to ourselves the person in full, and say we saw him in the street. Sitting in my room at evening I hear the regular passenger train come in. The noise alone suggests the engine, cars, conductor, passengers, and all the train complete. As a matter of fact, I saw nothing at all but have before my mind the whole picture. On Sunday morning I see some one enter a familiar church door, and, going on my way, the whole picture of church, congregation, pastor, music, and sermon come distinctly to my mind. Only a passing glance at one person entering suggests the whole scene. In looking at a varied landscape we see many things which the sensuous eye alone could not detect, — distances, perspective and relative size, position and nature of objects. This apperceptive power is of vast importance in practical life, as it leads to quick judgment and action when personal examination into details would be impossible.

In apperception we never pass from the known to things which are entirely new. Absolutely new knowledge is gained by perception or intuition. When an older person meets with something totally new, he either does not notice it or it staggers him. Apperception does not take place. In many cases we are disturbed or frightened, as children, by some new or sudden noise or object.

Parkman, in his description of the Indians of Fort Laramie, gives a good illustration of their limited powers of apperception: "They were bent on inspecting everything in the room; our equipments and our dress alike underwent their scrutiny; for though the contrary has been carelessly asserted, few beings have more curiosity than Indians in regard to subjects within their ordinary range of thought. As to other matters, indeed, they seemed utterly indifferent. They will not trouble themselves to inquire into what they cannot comprehend, but are quite contented to place their hands over their mouths in token of wonder, and exclaim that it is 'great medicine.' With this comprehensive solution an Indian never is at a loss. He never launches forth into speculation and conjecture; his reason moves in its beaten track. His soul is dormant; and no exertions of the missionaries, Jesuit or Puritan, of the Old World or of the New, have as yet availed to rouse it." "California and Oregon Trail," Chap. IX.

This reminds us also of the Esquimaux who were taken through the streets of London. To the surprise of many, they passed stolidly along without noticing the interesting and strange sights. They had not the kind of experience necessary to interpret what they saw.

But most so-called new things bear sufficient resemblance to things seen before to admit of explanation. Strange as the sights of a Chinese city might appear, we should still know that we were in a city. In most "new" objects of observation or study, the familiar parts greatly preponderate over the unfamiliar. In a new reading lesson, for example, most of the words and ideas are well known; only an occasional word requires explanation, and that by using familiar illustrations. The flood of our familiar and oft-repeated ideas sweeps on like a great river, receiving here and there from either side a tributary stream, that is swallowed up in its waters without perceptible increase.

So strong is the apperceiving force of familiar notions that they drag far-distant scenes in geography and history into the home neighborhood and locate them there. The imagination works in conjunction with the apperceiving faculty and constructs real pictures. Children are otherwise inclined to substitute one thing for another by imagination. With boys and girls, geographical objects about home are often converted by fancy into representatives of distant places. It is related of Byron that while reading in childhood the story of the Trojan War, he localized all the places in the region of his home. An old hill and castle looking toward the plain and the sea were his Troy. The stream flowing through the plain was the Simois. The places of famous conflicts between the Trojans and Greeks were located. So vivid were the pictures which these home scenes gave to the child, that years later, in visiting Asia Minor and the site of the real Troy, he was not so deeply impressed as in his childhood. Rein relates that he and his companions, while reading the Indian stories of Cooper, located the important scenes in the hills and valleys about Eisenach in the Thuringian Mountains. Many other illustrations of the same imaginative tendency to substitute home objects for foreign ones are given. But whether or not this experience is true of us all, it is certain that we can form no idea of foreign places and events except as we construct the pictures out of the fragments of things that we have known. What we have seen of rivers, lands, and cities must form the materials for picturing to ourselves distant places. This power of apperception to draw things far distant in place and time into the home surroundings is an extreme illustration of the tendency of all incoming knowledge to encamp close around the child's centre of being, his home and neighborhood experience. Just as a child's speech, his tones and accent, throughout life, betray his early home life and surroundings, so all his ideas are colored by the thoughts of his childhood. All his later interpretations of knowledge rest upon this foundation.

The opposite of this is not seldom met in our teaching and reveals what a travesty is learning without such interpretation. Dr. Dewey says, "While I was visiting in the city of Moline a few years ago, the superintendent told me that they found many children every year who were surprised to learn that the Mississippi River in the text-book had anything to do with the stream of water flowing past their homes."

Since the old ideas have so much to do with the proper reception of the new, let us examine more closely the interaction of the two. If a new idea drops into the mind, like a stone upon the surface of the water, it produces a commotion. It acts as a stimulus or wakener to the old ideas sleeping beneath the surface. It draws them up above the surface level; that is, into consciousness. But what ideas are thus disturbed? There are thousands of these latent ideas, embryonic thoughts, beneath the surface. Those which possess sufficient kinship to this newcomer to hear his call, respond. For in the mind "birds of a feather flock together." Ideas and thoughts which resemble the new one answer; the others sleep on undisturbed, except a few who are so intimately associated with these kinsmen as to be disturbed when they are disturbed. Or, to state it differently, certain thought-groups, or complexes, which contain elements kindred to the new notion, are agitated and raised into conscious thought. They seem to respond to their names. The new idea may continue for some time to stimulate and agitate. There appears to be a sort of telegraphic inquiry through the regions of the mind to find out where the kindred dwell. The distant relatives and strangers (the unrelated or serviceable ideas) soon discover that they have responded to the wrong call and drop back to sleep again. But the real kindred wake up more and more. They come forward to inspect the newcomer and to examine his credentials. Soon he finds that he is surrounded by inquisitive friends and relatives. They threaten even to take possession of him.

Up to this point the new idea has taken the lead, he has been the aggressor. But now is the time for the awakened kindred ideas to assume control and lead the stranger captive, to bring him in among themselves and give him his appropriate place and importance. The old body of ideas, when once set in motion, is more powerful than any single-handed stranger that happens to fall into their company. The outcome is that the stranger, who at first seemed to be producing such a sensation, now discovers that strong arms are about him and he is carried captive by vigorous friends. New ideas when first entering the mind are very strong, and, if they come through the senses, are especially rich in the color and vigor of real life. They therefore absorb the attention at first and seem to monopolize the mental energies; but the older thought masses, when fully aroused, are better organized, more firmly rooted in habit, and possess much wider connections. They are almost certain, therefore, to apperceive the new idea; that is, to conquer and subdue it, to make it tributary to their power.

Let us examine more closely the effect of the process of apperception upon the new and old ideas that are brought in contact. First, observe the effect upon the new. Many a new idea which is not strong enough in itself to make a lasting impression upon the mind would quickly fade out and be forgotten were it not that in this process the old ideas throw it into a clear light, give it more meaning, associate it closely with themselves, and thus save it. Two persons look at the sword of Washington; one examines it with deep interest, the other scarcely gives it a second glance. The one remembers it for life, the other forgets it in an hour. The sense perception was the same in both persons at first, but the reception given to the idea by one converts it into a lasting treasure. A little lampblack, rolled up between the finger and thumb, suggested to Edison his carbon points for the electric light. A piece of lampblack would produce no such effect in most people's minds. The difference is in the reception accorded to an idea. The meaning and importance of an idea or event depend upon the interpretation put upon it by our previous experience. Lange's "Apperception," De Garmo's edition, p. 21, says: —

"Many a weak, obscure, and fleeting perception would pass almost unnoticed into obscurity, did not the additional activity of apperception hold it fast in consciousness. This sharpens the senses, *i.e.* it gives to the organs of sense a greater degree of energy, so that the watching eye now sees, and the listening ear hears, that which ordinarily would pass unnoticed. The events of apperception give to the senses a peculiar keenness, which underlies the skill of the money-changer in detecting a counterfeit among a thousand bank-notes, notwithstanding its deceptive similarity; of the jeweller who marks the slightest, apparently imperceptible, flaw in an ornament; of the physicist who perceives distinctly the overtones of a vibrating string. According to this we see and hear not only with the eye and ear, but quite as much with the help of our present knowledge, with the apperceiving content of the mind."

Some even intelligent and sensible people can walk through Westminster Abbey and see nothing but a curious old church with a few graves and monuments. To a person well versed in English history and literature it is a shrine of poets, a temple of heroes, the common resting-place of statesmen and kings.

Now, what is the effect on the old ideas? Every idea that newly enters the mind produces changes in the older groups and series of thought. Any one new idea may cause but slight changes, but the constant influx of new experiences works steadily at a modification and rearrangement of our previous stores of thought. Faulty and incomplete groups and concepts are corrected or enlarged; that is, changed from psychical into logical notions. Children are surprised to find little flowers on the oaks, maples, walnuts, and other large forest trees. On account of the small size of the blossoms, heretofore unnoticed, they had not thought of the great trees as belonging to the flowering plants. Their notion of flowering plants is, therefore, greatly enlarged by a few new observations. The bats flying about in the twilight have been regarded as birds; but a closer inspection shows that they belong to another class, and the notion "bird" must be limited, and the other class enlarged. As already observed in the discussion of induction, most of our psychical notions are thus faulty and incomplete, *e.g.* the ideas fruit, fish, star, insect, mineral, ship, church, clock, dog, kitchen, library, lawyer, city, etc. Our notions of these and of hundreds of other such classes are at first both incomplete and faulty. The inflow of new ideas constantly modifies them, extending, limiting, explaining, and correcting our previous concepts.

Sometimes, however, a single new thought may have wide-reaching effects; it may even revolutionize one's previous modes of thinking and reorganize one's activities about a new centre. With Luther, for instance, the idea of justification by faith was a new and potent force, breaking up and rearranging his old forms of thought. St. Paul's vision on the way to Damascus is a still more striking illustration of the power of a new idea or conviction. And yet, even in such cases, the old ideas reassert themselves with great persistence and power. Luther and Paul remained, even after these great changes, in many respects the same kind of men as before. Their old habits of thinking were modified, not destroyed; the direction of their lives was changed, but many of their habits and characteristics remained almost unaltered.

Apperception, however, is not limited to the effects of external objects upon us, to the influence of ideas coming from without upon our old stores of knowledge. Old ideas, long since stored in the mind, may be freshly called up and brought into such contact with each other that new results follow, new apperceptions take place. In moments of reflection we are often surprised by conclusions that had not presented themselves to us before. A new light dawns upon us, and we are surprised at not having seen it before. In fact, it makes little difference whether the idea suggested to the mind comes from within or from without, if when it once enters fairly into consciousness it has power to stimulate other thoughts, to wake up whole thought complexes, and bring about a process of action and reaction between itself and others. The result is new associations, new conclusions, new mental products — apperceptions. This inner apperception, as it has been sometimes called, takes place constantly when we are occupied with our own thoughts rather than with external impressions. With persons of deep, steady, reflective habits, it is the chief means of organizing their mental stores. The feelings and the will have much, also, to do with this process.

The laws of association draw the feelings as much as the intellectual states into apperceptive acts. I hear of a friend who has had disasters in business and has lost his whole fortune. If I have never experienced such difficulties myself, the chances are that the news will not make a deep impression upon me. But if I have once gone through the despondency of such a crushing defeat, sympathy for my friend will be awakened, and I may feel his trouble almost as my own. The meaning of such an item of news depends upon the response which it finds in my own feelings. It is well known that those friends can best sympathize with us in our trouble who have passed through the same troubles. Even enemies are not lacking in sympathy with each other when an appeal is made to deep feelings and experiences common to both. A good example of this is the story told of the two opposing armies, encamped one night on opposite sides of the river in Virginia during the Civil War. In the darkness each shore resounded with its own war songs, expressing its feelings of loyalty and defiance. At length some one started up "Home, Sweet Home." Gradually it spread through both armies, and was sung with enthusiasm as they were mastered and swept along by its deep common sentiment.

3 The growth of the better sympathies, by systematic extension and enlargement, so as to form strong apperceptive masses on the basis of family and social life and of religious devotion, is fully as important as intellectual culture, and it is the great means for bringing children gradually into apperceptive touch with social, political, and industrial life with its difficult problems.

The feeling of interest, which we have emphasized so much, is chiefly, if not wholly, dependent upon apperceptive conditions. Select a lesson adapted to the age and understanding of a child, present it in such a way as to recall and make use of his previous experience, and interest is certain to follow. The outcome of a successful act of apperception is always a feeling of pleasure, or at least of interest. When the principle of apperception is fully applied in teaching, the progress from one point to another is so gradual and clear that it gives pleasure. A child is always delighted to find that he can make use of his previous knowledge. The clearness and understanding with which we receive knowledge adds greatly to our interest in it. On the contrary, when apperception is violated, and new knowledge is only half understood and assimilated, there can be but little feeling of satisfaction.

Lange's "Apperception," p. 19, says: —

"The overcoming of certain difficulties, the accession of numerous ideas, the success of the act of knowledge or recognition, the greater clearness that the ideas have gained, awaken a feeling of pleasure. We become conscious of the growth of our knowledge and power of understanding. The significance of this new impression for our ego is now more strongly felt than at the beginning or during the course of the progress. To this pleasurable feeling is easily added the effort, at favorable opportunity, to reproduce the product of the apperception, to supplement and deepen it, to unite it to other ideas, and so further to extend certain chains of thought. The summit or sum of these states of mind we happily express with the word "interest." For in reality the feeling of self appears between the various stages of the process of apperception (*interesse*); with one's whole soul does one contemplate the object of attention. If we regard the acquired knowledge as the objective result of apperception, interest must be regarded as the subjective side."

Finally, the will has much to do with conscious efforts at apperception. It holds the thought to certain groups; it excludes or pushes back irrelevant ideas that crowd in; it holds to a steady comparison of ideas, even where perplexity and obscurity trouble the thinker. When the process of reaching a conclusion takes much time, when conflict or contradiction have to be removed or adjusted, when reflection and reasoning are necessary, the will is of great importance in giving coherency and steadiness to the apperceptive effort. A conscious effort at apperception, therefore, may include many elements, sense perceptions, ideas recalled, feeling, will.

Lange's "Apperception," p. 41, says: —

"Let us now sum up the essentials in the process of apperception. First of all, an external or internal perception, an idea, or idea-complex appears in consciousness, finding more or less response in the mind;

that is, giving rise to greater or less stimulation to thought and feeling.

"In consequence of this, and in accordance with the psychical mechanism or an impulse of the will, one or more groups of thoughts arise, which enter into relation to the perception. While the two masses are compared with one another, they work upon one another with more or less of a transforming power. New thought combinations are formed, until, finally, the perception is adjusted to the stronger and older thought combination. In this way all the factors concerned gain in value as to knowledge and feeling; especially, however, does the new idea gain a clearness and activity that it never would have gained for itself. Apperception is, therefore, that psychical activity by which individual perceptions, ideas, or idea-complexes are brought into relation to our previous intellectual and emotional life, assimilated with it, and thus raised to greater clearness, activity, and significance."

Important Conclusions drawn from a Study of Apperception

First. Value of previous knowledge. If knowledge once acquired is so valuable, we are, first of all, urged to make the acquisition permanent. Thorough mastery and frequent reviews are necessary to make knowledge stick. Careless and superficial study is injurious. It is sometimes carelessly remarked by those who are supposed to be wise in educational doctrine, that it makes no difference how much we forget, if we only have proper drill and training to study. But viewed in the light of apperception, acquired knowledge should be retained and used, for it unlocks the door to more knowledge. Thorough mastery and retention of the elements of knowledge in the different branches is the only solid road to progress. In this connection we can see the importance of learning only what is worth remembering, what will prove a valuable treasure in future study. In the selection of materials for school studies, therefore, we must keep in mind knowledge which, as Comenius says, is of solid utility. Knowledge which is thus useful is in itself a strong element of power, because it is a direct means of interpreting and mastering the world. Much of the knowledge gained in schools for mere disciplinary purposes is not, in the apperceptive sense, a source of power. It may be, indeed, mere pedantry and pretence, and even self-deception. The doctrine of apperception has laid the axe to the root of that ancient tree known as pure formal discipline.

Second. The use of our acquired stock of ideas involves a constant working over of old ideas, and this working-over process not only reviews and strengthens past knowledge, keeping it from forgetfulness, but it throws new light upon it and exposes it to a many-sided criticism. In the first place, familiar ideas should not be allowed to rest in the mind unused. Like tools for service they must be kept bright and sharp. One reason why so many of the valuable ideas we have acquired have gradually disappeared from the mind is because they remained so long unused that they faded out of sight. The old saying that "repetition is the mother of studies" needs to be recalled and emphasized from a new point of view. By being put in contact with new ideas, old notions are seen and appreciated in new relations. Facts that have long lain unexplained in the mind, suddenly receive a new interpretation, a vivid and rational meaning; or the old meaning is intensified and vivified by putting a new fact in conjunction with it.

When the climate and products of the British Isles have been previously studied in political geography, and the Gulf Stream is explained later in its bearings on the climate of western Europe, the whole subject of the climate of England is viewed from a new and interesting standpoint. In arithmetic, where the sum of the squares of the two sides of a right-angled triangle is illustrated by an example, and later on in geometry the same proposition is taken up in a different way and proved as a universal truth, new and interesting light is thrown upon an old problem of arithmetic. In United States history, after the Revolution has been studied, the biography of a man like Samuel

Adams throws much additional and vivid light upon the events and the actors in Boston and Massachusetts. The life of John Adams would give a still different view of the same great events; just as a city, as seen from different standpoints, presents different aspects.

Third. In the acquisition of new knowledge apperception has its special field of conquest. Every day of his life, especially in school, a child should be running up against new forms of knowledge, which need to be understood and mastered. The pupil should learn how to approach new knowledge intelligently, not awkwardly, stupidly, and mechanically. He should not multiply because he is told to, nor memorize because he can't understand. But he should learn to think, and thinking in this case consists in bringing to bear his previous experience upon this new thing. Successful apperception has two immediate results. It gives a quicker insight into the new and produces a feeling of pleasure and satisfaction at the same time. Moreover, this is accomplished by the child's self-activity and not by any dextrous shifting of the load on to the shoulders of the teachers.

Fourth. We have thus far shown that new ideas are more easily understood and assimilated when they are brought into close contact with what we already know; and secondly, that our old knowledge is often explained and illuminated by new facts brought to bear upon it. We may now observe the result of this double action — the welding of old and new into one piece, the close mingling and association of all our knowledge, *i.e.* its unity. Apperception, therefore, has the same final tendency that was observed in the inductive process, the unification of knowledge, the concentration of all experience by uniting its parts into groups and series. The smith, in welding together two pieces of iron, heats both and then hammers them together into one piece. The teacher has something similar to do. He must revive old ideas in the child's mind, then present the new facts and bring the two things together while they are still fresh, so as to cause them to coalesce. To prove this, observe how long division may be best taught. Call up and review the method of short division, then proceed to work a problem in long division, calling attention to the similar steps and processes in the two, and finally to the difference between them.

The defect of much teaching in children's classes is that the teacher does not properly provide for the welding together of the new and old. The important practical question after all is whether instructors see to it that children recall their previous knowledge. It is necessary to take special pains in this. Nothing is more common than to find children forgetting the very things which, if remembered, would explain the difficult point in the lesson. Teachers are often surprised that children have forgotten things once learned. But, in an important sense, we encourage children to forget by not calling into use their acquisitions. Lessons are learned too much each by itself, without reference to what precedes or what follows, or what effect this lesson of to-day may have upon things learned a year ago. Putting it briefly, children and teachers do not think enough, pondering things over in their minds, relating facts with each other, and bringing all knowledge into unity and into a clear comprehension. The habit of thoughtfulness, engendered by a proper combining of old and new, is one of the valuable results of a good education. It gives the mind a disposition to glance backward or forward, to judge of all old ideas from a broader, more intelligent standpoint. Thinking everything over in the light of the best experience we can bring to bear upon it, prevents us from jumping at conclusions.

Fifth. Again, if we accept the doctrine that old ideas are the materials out of which we constantly build bridges across into new fields of knowledge, we must know the children better, and what store of knowledge they have already acquired. Just as an army marching into a new country must know well the country through which it has passed, and must keep open the line of communication and the base of supplies, so the student must always have a safe retreat into his past, and a base of supplies to sustain him in his onward movements. The tendency is very strong for a grade teacher to think that she needs to know nothing except the facts to be acquired in her own grade. But she should remember that her grade is only a station on the highway to learning and life. In teaching we cannot by any shift dispense with the ideas children have gained at home, at play, in the school, and outside of it. This, in connection with what the child has learned in the previous grades, constitutes a stock of ideas, a capital, upon which the teacher should freely draw in illustrating daily lessons.

Sixth. The general plan of all studies is based upon this notion of acquiring knowledge by the assistance of accumulated funds. In arithmetic it would be folly to begin with long division before the multiplication table is learned. In geometry, later propositions depend upon earlier principles and demonstrations. In Latin, vocabularies and inflections and syntactical relations must be mastered before readiness in the use of language is reached. And so it is to a large degree in the general plan of all studies. In spite of this, no principle is more commonly violated in daily recitations than that of apperception. Its value is self-evident as a principle for the arrangement of topics in any branch of study, but it is overlooked in daily lessons. Instead of this, new knowledge is acquired by a thoughtless memory drill.

Seventh. In this welding process we desire to determine how far an actual concentration may take place between school studies and the home and outside life of children. The stock of ideas and feelings which a child from its infancy has gathered from its peculiar history and home surroundings is the primitive basis of its personality. Its thoughts, feelings, and individuality are deeply interwoven with home experience. No other set of ideas, later acquired, lies so close to its heart or is so abiding in its memory. The memory of work and play at home; of the house, yard, trees, and garden, of parents, brothers, and sisters; and, in addition to this, the experiences connected with neighbors and friends, the town and surrounding country, the church and its influence, the holidays, games, and celebrations, — all these things lie deeper in the minds of children than the facts learned about grammar, geography, or history in school. Any plan of education that ignores these home-bred ideas, these events, memories, and sympathies of home and neighborhood life, will make a vital mistake. A concentration that keeps in mind only the school studies and disregards the rich fund of ideas that every child brings from his home, must be a failure, because it only includes the weaker half of his experience. Home knowledge itself may not always be made a concentrating centre, but all its best materials must be drawn into the concentrating centre of the school. Yet children bring many faulty, mistaken, and even vicious ideas from their homes. It is well to know the actual situation. It is the work of the school, at every step, while receiving, to correct, enlarge, or arrange the faulty or disordered knowledge brought into the school by children. We unconsciously use these materials, and depend upon them for explaining new lessons, more constantly than we are aware of. In fact, if we were wise teachers, we would consciously make a more frequent use of them and, in order to render them more valuable, take special pains to review, correct, and arrange them. We would teach children to observe more closely and to remember better the things they daily see.

We shall appreciate better the value of home knowledge if we take note of the direct and constant dependence of the most important studies upon it. We usually think of history as something far away in New England, or France, or Egypt. History is mainly the study of the actions, customs, homes, and institutions of men in different countries. But what an abundance of similar facts and observations a child has gathered about home before he begins the study of history! From his infancy he has seen people of all sorts and conditions, rich and poor, ignorant and learned, honorable and mean. He has seen all sorts of human actions, learned to know their meaning and to pass judgment upon them. He has seen houses, churches, public buildings, trade and commerce, and a hundred human institutions. The child has been studying human actions and institutions in the concrete for a dozen years before he begins to read and recite history from books. Without the knowledge thus acquired out of school, society, government, and institutions would be worse than Greek. Geography, as taught in the books, would be totally foreign and strange but for the abundance of ideas the child has already picked up about hills, streams, roads, travel, storms, trees, animals, and people.

Natural science lessons must be based on a more careful study of things already seen about home — rocks and streams, flowers and plants, animals wild and tame. These, with the forests, fields, brooks, seasons, tools, and inventions, are the necessary object lessons in natural science which can serve daily to illustrate other lessons. How near, then, do the natural science topics, geography and history, stand to the daily home life of a child! How intimate should be the relations which the school should establish between the parts of a child's experience! This is concentration in the broadest sense. A proper appreciation of this principle will save us from a number of common errors. Besides constantly associating home and school knowledge, we shall try to know the home and parents better, and the disposition and surroundings of each child. We shall be ready at any time to render home knowledge more clear and accurate, to correct faulty observation and opinion. While the children will be encouraged to illustrate lessons from their own experience, we shall fall into the excellent habit of explaining new and difficult points by a direct appeal to what the pupils have seen and understood. In short, there will be a disposition to draw into the concentrating work of the school all the deeper but outside life-experiences which form so important an element in the character of every person, which, however, teachers so often overlook. No other institution has such an opportunity or power to concentrate knowledge and experience as the school.

Eighth. Another valuable educative result of apperception, cultivated in this manner, is a consciousness of power which springs from the ability to make a good use of our knowledge. The oftener children become aware that they have made a good use of acquired knowledge, the more they are encouraged. They see the treasure growing in their hands, and feel conscious of their ability to use it. There is a mental exhilaration like that coming from abundant physical strength and health.

Ninth. The apperceptive process, by bringing together kindred ideas, constantly works toward the development of our concepts or general notions. The crude classifications made by children in earlier years are steadily enlarged, revised, and clarified by the corrective influence of kindred incoming ideas. This is the natural process of converting the imperfect psychical notions into well-defined, logical concepts. In a still broader sense certain strong centres of thought and feeling are built up which become dominant, and lead to well-established habits of judging and acting. The student of biology begins to interpret all phenomena by biological analogies, the clergyman projects scriptural language and imagery into every experience, the boy may think of nothing but hunting and adventure, and, if this single apperception mass of thought and feeling becomes too strong, it will assert complete control, to the detriment of education.

These centres of thought and feeling, apperception masses, as they are called, need to be built up firm and well compacted in every important branch of study and experience, if character is to be well-balanced and liberal. Each important study in the school course is designed to build up and establish a few of these powerful apperceptive centres, while the school course as a whole is designed to organize and combine all the centres of life in subordination to ethical ideals. This, however, is only another mode of saying that the ethical centres must be the most powerful of all. But ethical ideals are capable of becoming just such strongholds of character if education will do its proper work.

Tenth. It is the peculiar task of the teacher to guide the child in the process of acquisition, to supervise this interaction of old and new. To do this successfully he must know how to use skilfully the apperceptive masses previously formed by the children. In asking questions he must know how to find the word which will touch off these latent thought energies. This requires much delicacy and sympathetic skill on the teacher's part. An apt question may be the key which unlocks the child's treasure-house. An appeal to their own feeling or experience may act like a flood of sunshine. The teacher should be in search of the key words or questions which touch vitally the apperception centres of the child's experience. This will save a great deal of time and worry. Sometimes the teacher asks a question or sets a problem which wholly misses the child's apperception mass, as when the teacher asked the children to write about the robin, and what they saw him doing on the way to school. One little fellow wrote, "I ain't saw no robin, and he wasn't doin' nothin'."

Lange's "Apperception," edited by De Garmo, beginning at page 99, is as follows: —

"Let us look back again at the results of our investigation. We observe first what essential services apperception performs for the human mind in the acquisition of new ideas, and for what an extraordinary easement and unburdening the acquiring soul is indebted to it. Should apperception once fail, or were it not implied in the very nature of our minds, we should, in the reception of sense-impressions, daily expend as much power as the child in its earliest years, since the perpetually changing objects of the external world would nearly always appear strange and new. We should gain the mastery of external things more slowly and painfully, and arrive much later at a certain conclusion of our external experience than we do now, and thereby remain perceptibly behind in our mental development. Like children with their A B C, we should be forced to take careful note of each word, and not, as now, allow ourselves actually to perceive only a few words in each sentence. In a word, without apperception our minds, with strikingly greater and more exhaustive labor, would attain relatively smaller results. Indeed, we are seldom conscious of the extent to which our perception is supported by apperception; of how it releases the senses from a large part of their labor, so that in reality we listen usually with half an ear or with a divided attention; nor, on the other hand, do we ordinarily reflect that apperception lends the sense organs a greater degree of energy, so that they perceive with greater sharpness and penetration than were otherwise possible. We do not consider that apperception spares us the trouble of examining ever anew and in small detail all the objects and phenomena that present themselves to us, so as to get their meaning, or that it thus prevents our mental power from scattering and from being worn out with wearisome, fruitless detail labors. The secret of its extraordinary success lies in the fact that it refers the new to the old, the strange to the familiar, the unknown to the known, that which is not comprehended to what is already understood, and thus constitutes a part of our mental furniture; that it transforms the difficult and unaccustomed into the accustomed, and causes us to grasp everything new by means of old-time, well-known ideas. Since, then, it accomplishes great and unusual results by small means, in so far as it reserves for the soul the greatest amount of power for other purposes, it agrees with the general principle of the least expenditure of force, or with that of the best adaptability of means to ends.

"As in the reception of new impressions, so also in working over and developing the previously acquired content of the mind, the helpful work of apperception shows itself. By connecting isolated things with mental groups already formed, and by assigning to the new its proper place among them, apperception not only increases the clearness and definiteness of ideas, but knits them more firmly to our consciousness. Apperceiving ideas are the best aids to memory. Again, so often as it subordinates new impressions to older ones, it labors at the association and articulation of the manifold materials of perception and thought. By condensing the content of observation and thinking into concepts and rules, or general experiences and principles, or ideals and general notions, apperception produces connection and order in our knowledge and volition. With its assistance there springs up those universal thought complexes which, distributed to the various fields to which they belong, appear as logical, linguistic, æsthetic, moral, and religious norms or principles. If these acquire a higher degree of value for our feelings, if we find ourselves heartily attached to them, so that we prefer them to all those things which are contradictory, if we bind them to our own self, they will thus become powerful mental groups, which spring up independent of the psychical mechanism as often as kindred ideas appear in the mind. In the presence of these they now make manifest their apperceiving power. We measure and estimate them now according to universal laws. They are, so to speak, the eyes and hand of the will, with which, regulating and supplementing, rejecting and correcting, it lays a grasp upon the content as well as upon the succession of ideas. They hinder the purely mechanical flow of thought and desire, and our involuntary absorption in external impressions and in the varied play of fancy. We learn how to control religious impulses by laws, to rule thoughts by thoughts. In the place of the mechanical, appears the regulated course of thinking; in the place of the psychical rule of caprice, the monarchical control of higher laws and principles, and the spontaneity of the ego as the kernel of the personality. By the aid of apperception, therefore, we are lifted gradually from psychical bondage to mental and moral freedom. And now when ideal norms are apperceivingly active in the field of knowledge and thought, of feeling and will, when they give laws to the psychical mechanism, true culture is attained."

CHAPTER VII

THE WILL

We have now completed the discussion of the concept-bearing or inductive process in learning and apperception, and find that they both tend to the unifying of knowledge and to the awakening of strong and legitimate interest.

It now remains to be seen how the will is related to all this mental machinery, how the will grows up in the midst of these activities, part and parcel of them, and gradually emerges into dominancy. For it would be a great pity if all this splendid machinery of intellect and feeling could not be unified under one executive.

The will is the power of the mind which deliberates, chooses, decides, controls action.

According to psychology there are three distinct activities of the mind, — knowing, feeling, and willing. These three powers are related to one another as coordinates, and yet the will should become the monarch of the mind. It is expected that all the other activities of the mind will be brought into subjection to the will. For strong character resides in the will. Strength of character depends upon the mastery which the will has acquired over the life; and the formation of character, as shown in a strong moral will, is the highest aim of education.

The great problem for us to solve is, first, How far can the deliberate purpose and plan of education contribute to the evolution of a right will?

There is an apparent contradiction in saying that the will is the monarch of the mind, the power which must control and subject all the other powers; and yet that it can be trained, educated, moulded, and chiefly, too, by a proper cultivation of the other powers, feeling and knowing. Knowledge and feeling, while they are subject to the will, still constitute its strength, just as the soldiers and officers of an army are subject to a commander and yet make him powerful.

Our modern psychology assumes that the will, like bodily and other mental powers, is subject to a process of evolution, that is, the will develops gradually from the lower and obscure impulses and instincts up through the higher phases of interest and desire, and eventually through submission to moral obligation and conscience, to free will in the moral sense. Putting it very briefly, the will, in its earlier stages, at least, is plastic and educable.

Dexter and Garlick, in their "Psychology in the Schoolroom," p. 283, say:—

"The growth and development of the will can be measured by the type of movement involved. Movements are either voluntary or involuntary; that is, they either involve an act of conscious willing, or they do not.

"The involuntary are the first to appear, and include those impulsive, reflex, and instinctive movements which are the characteristics of infancy and early childhood. The tendency to these movements is inherited, but their powers and their relations to the bodily wants are learnt only by experience. We recognize the first signs of the will in these early muscular movements, and at first they are the only indication we have of its existence.

"Voluntary movements embrace the higher forms, such as sensory, imitative, and deliberative movements.

"Our first movements are random and reflex acts. The instinctive movements are a distinct advance on these, for they are accompanied by feeling and a vague form of desire. The value of instinctive movements in the growth of the will lies in the check they impose on reflex movements. They also represent that "untaught ability" which leads the young animal to perform those actions which are essential to its existence. Instinctive movements are the will of the race exemplified in the will of the individual.

"The growth of control may be observed in a child. At first he is a mere bundle of appetites. Self and immediate gratification is his policy. Any check produces an outburst of feeling. Meantime his education is proceeding, and he learns much from experience. He begins to learn that there are principles of conduct which often conflict with his impulses, but which have nevertheless to be considered. In the first struggles the victory invariably rests with impulse. There is reflection, but in too weak a state for the mastery of impulse. But the social feelings are developing, and soon there comes a time when the higher feeling prevails. He ceases to beat his drum because his mother has a headache. It is his first victory, but it is by no means his hardest or greatest. Many severe struggles are before him. Defeat is probably frequent, but no longer general. The impulse to play is strong and exacting, but it is put aside at times for work. The sweets and toys are now sometimes shared with others. Impulse is yielding slowly to principle.

"This marks the general limit for young children, but further developments may be observed in the older ones. The boy will still consume unlimited cake, neglect his lessons, or give way to fits of temper. But other considerations are gradually forcing themselves upon him. He sees that gluttony impairs his health, laziness his reputation, and temper his comfort. He learns that health, reputation, comfort, etc., are desirable. His health is important, because he wants to shine in the school games; his lessons receive attention, because he wishes to please his teacher, parents, or raise his class position."

The will emerges gradually from its early crude condition of blind impulse or unconscious instinct, first, by joining forces with intellect and thus exposing itself to the light of reason, and second, by reënforcing itself with the energy of the better feelings. It is through the intellect and the feelings, therefore, that the educator can get some purchase upon the will, and thus help to determine the final form which volition takes. We need, therefore, to study closely the relation of will to intellect and feeling.

The older psychologies set up the three forms of knowing, feeling, and will as wholly distinct, but the relation and even kinship between them seem much closer than was formerly supposed.

William James, in his "Talks to Teachers," p. 170, says: —

"All our deeds were considered by the early psychologists to be due to a peculiar faculty called the will, without whose fiat action could not occur. Thoughts and impressions, being intrinsically inactive, were supposed to produce conduct only through the intermediation of this superior agent. Until they twitched its coat-tails, so to speak, no outward behavior could occur. This doctrine was long ago exploded by the discovery of the phenomena of reflex action, in which sensible impressions, as you know, produce movement immediately and of themselves. The doctrine may also be considered exploded as far as ideas go.

"The fact is that there is no sort of consciousness whatever, be it sensation, feeling, or idea, which does not directly and of itself tend to discharge into some motor effect. The motor effect need not always be an outward stroke of behavior. It may be only an alteration of the heart-beats or breathing, or a modification in the distribution of blood, such as blushing or turning pale; or else a secretion of tears, or what not. But, in any case, it is there in some shape when any consciousness is there; and a belief as fundamental as any in modern psychology is the belief at last attained, that conscious processes of any sort, conscious processes merely as such, must pass over into motion, open or concealed."

This ideo-motor character of knowledge is equalled on the negative side by the inhibitive power of ideas, by which tendencies to act are checked or prohibited. There is a certain propulsive energy, exhibited by ideas themselves, abundantly illustrated by psychologists, by which they produce or exhibit action. Dexter and Garlick, in their "Psychology in the Schoolroom," p. 293, say:—

"The great field of the ideo-motor class of movements is the imitative. The imitative impulse leads to the incessant repetition of these movements among children, and the growth of will is thus correspondingly rapid. They supply very largely that great field for exercise and example, which are so necessary for the correction, acquisition, and perfection of movements.

"The development of ideo-motor movements leads gradually to those more perfect forms of voluntary movement which mark the higher stages of volition. The child's mind becomes stocked with motor images, and with the constant assistance of the other elements he is finally enabled to reach the stage of pure voluntary action."

But the dependence of the will upon knowing is especially shown, also, in the illumination of the field of action by knowledge, and by the narrow limits which ignorance sets to will effort.

Before the will can decide to do any given act, it must see its way clearly. It must at least believe in the possibility. In trying to get across a stream, for example, if one cannot swim and there is no bridge nor boat, nor means of making one, the will cannot act. It is helpless. The will must be shown the way to its aims, or they are impossible. The more clear and distinct our knowledge, the better we can lay our plans and will to carry them out. It would be impossible for one of us to will to run a steam engine from Chicago to New York to-day. We don't know how, and we should not be permitted to try. In every field of action we must have knowledge, and clear knowledge, before the will can act to good advantage. It is only knowledge, or at least faith in the possibility of accomplishing an undertaking, that opens the way to will. Much successful experience in any line of work brings increasing confidence, and the will is greatly strengthened, because one knows that certain actions are possible. The simple acquisition of facts, therefore, the increase of knowledge so long as it is well digested, makes it possible for the will to act with greater energy in various directions. The more clear this knowledge is, the more thoroughly it is cemented together in its parts and subject to control, the greater and more effective can be the will action. All the knowledge we may acquire can be used by the will in planning and carrying out its purposes. Knowledge, therefore, derived from all sources, is a means used by the will, and increases the possibilities of its action.

But, secondly, there are found still more immediate means of stimulating and strengthening the will, namely, in the feelings. The feelings are more closely related to will than knowledge, at least in the sense of cause and effect. There is a gradual transition from the feelings up to the will, as follows: interest in an object, inclination, desire, and purpose, or will to secure it. We might say that will is only the final link in the chain, and the feelings and desires lead up to and produce the act of willing. Even will itself has been called a feeling by some psychologists and classed with the feelings. But the thing in which we are now most concerned is, how to reach and strengthen the will through the feelings. Some of the feelings which powerfully influence the will are desire of approbation, ambition, love of knowledge, appreciation of the beautiful and the good; or, on the other side, rivalry, envy, hate, and ill-will. Now, it is clear that a cultivation of the feelings and emotions is possible which may strongly influence the purposes and decisions of the will, either in the right or wrong direction. It is just at this point that education is capable of a vigorous influence in moulding the character of a child. The cultivation of the six interests already mentioned is little else than cultivation of the great classes of feeling, for interest always contains a strong element of feeling. It is certain in any case that a child's, and eventually a man's, will is to be guided largely by his feelings. Whether any care is taken in education or not, feeling, good or bad, is destined to guide the will. Most people, as we know, are too much influenced by their feelings. This is apparent in the adage, "Think twice before you speak." Feelings of malice and ill-will, of revenge and envy, of dislike and jealousy, get the control in many lives, because they have been permitted to grow and nothing better has been put in their place. The teacher, by selecting the proper materials of study, is able to cultivate and strengthen such feelings as sympathy and kindness toward others; appreciation of brave, unselfish acts in others; the feeling of generosity, charity, and a forgiving spirit; a love for honesty and uprightness; a desire and ambition for knowledge in many directions. On the other hand, the teacher may gently instil a dislike for cowardice, meanness, selfishness, laziness, and envy, and bring the child to master and control these evil dispositions. Not only is it possible to cultivate those feelings which we may summarize as the love of the virtues, and develop a dislike and turning away from vices, but this work of cultivating the feelings may be carried on so systematically that great habits of feeling are formed, and these habits become the very strongholds of character. They are the forces steadily acting upon the will and guiding its choice.

The discussion of the relation of feeling to will has centred, in recent years, around the doctrine of interest. In our foregoing chapter on "Interest" we discussed the relation of interest to involuntary attention, and also to that phase of voluntary attention in which interest aids the will in maintaining attention. This phase of auxiliary interest shows itself, as we saw, in apperception and in the association of ideas, greatly facilitating the efforts of the will in attention.

There is a still more important phase of interest in its direct, or what we may call its causal, relation to will. Interest, desire, and will give us the three important links in the causal series that results in action. Assuming this causal connection between interest or feeling and will, many psychologists have spoken of interest as supplying the *motive* which prompts the will to action. Thus Ostermann, "Interest in its Relation to Pedagogy," p. 57, "That which is of no interest, an indifferent matter, exercises no determining influence whatever upon the will, either in a positive or in a negative direction." Again, "If the mind were merely intellect, and never from the beginning of its existence had felt any emotion of pleasure or displeasure, it would be void of all interest, and would, accordingly, not find in itself any impulse whatever to desire or will." Ostermann quotes a number of leading psychologists, who speak of the feelings as containing the motives which impel the will. For example, Wundt: "Motives are processes always accompanied by feelings, and these feelings turn out to be those elements of the motive in which the real cause of activity is contained. We would not will a thing if we were not stimulated by feelings."

Dewey says, p. 18, of "Interest as related to Will":—

"We are now in a position to deal with the question of the relation of interest to desire and to effort. Desire and effort in their legitimate meaning are, both of them, phases of mediated interest. They are correlatives, not opposites."

Again, p. 22, Dewey says:—

"What, it may be asked, is the connection of this with the question of interest? Precisely this: In the analysis of desire we are brought back exactly to the question of mediate interest. Normal desire is simply a case of properly mediated interest. The problem of attaining the proper balance between the impulses on one side and an ideal or end on the other is just the question of getting enough interest in the end to prevent a too sudden expenditure of the waste energy — to direct this excited energy so that it shall be tributary to realizing the end. Here the interest in the end is taken over into the means. Interest, in other words, marks the fact that the emotional force aroused is functioning. This is our definition of interest; it is impulse functioning with reference to an idea of self-expression.

"Interest in the end indicates that desire is both calmed and steadied. Over-greedy desire, like over-anxious aversion, defeats itself. The youthful hunter is so anxious to kill his game, he is so stimulated by the thought of reaching his end, that he cannot control himself sufficiently to take steady aim. He shoots wild. The successful hunter is not the one who has lost interest in his end, in killing the game, but the one who is able to translate this interest completely over into the means necessary to accomplish his purpose. It is no longer the killing of the game that occupies his consciousness by itself, but the thought of the steps he has to perform. The means, once more, have been identified with the end; the desire has become mediate interest. The ideal dies as bare ideal, to live again in instrumental powers."

Again, p. 25: "On the psychological side we find that interest in an end or object simply means that the self is finding its own movement or outlet in a certain direction, and that consequently there is a motive for effort, for putting forth energy, in realizing the desirable end.

"On the educational side we were led to assume that normal interest and effort are identical with the process of self-expression."

These passages from Dr. Dewey assume the closest possible relation between feeling, desire, and will. They are parts of one outgoing movement toward self-expression. In the same movement also an intellectual element is present which perceives ends and ideals.

Ostermann also finds an intellectual element in feeling. In reply to the argument that man should be governed in his desires and actions by intellect, he says, p. 67: "Our answer, in the first place, will be that interest, though in the beginning identical with feeling, changes by degrees into the form of the judgment of value, and that this judgment of value, though growing out of feeling and having motive power only for that reason, yet is no longer original feeling, but already an intellectual function of the mind, which in this judgment sums up and comprises all the single impressions of value upon feeling. In this respect interest and intellectual activity do not absolutely exclude each other."

At the same time the power of deliberation and choice rests partly upon knowledge and feeling. — p. 68: "He does not blindly follow the motive (interest) which happens to predominate in his consciousness at the moment, but — looking backward and forward — allows further interests to make themselves felt, and deliberates on the various possibilities open to his activity. This reflection of intellect is, according to experience, of wide-reaching importance in our desires and decisions; but the assertion is unalterable that what ultimately actuates will are always interests, whether they be real feelings or recollections and judgments of value which have grown out of feeling."

The study of the psychology of knowing, feeling, and will in more recent times has caused us to think these three forms of mental action in much closer relation and dependence upon one another than formerly. We find, on the one side, that ideas have a marked motor tendency, feeling is still more propulsive, and will is the preëminent propulsive energy. Starting from the other side, will is no longer pure will, but is rationalized so that it can see ends or ideals clearly. Feeling also is always attendant upon ideas, while ideas or knowledge are essentially intellectual. Psychologists speak of will in the broad sense and will in the narrow sense, meaning that there is a sense in which all mental life exhibits will. On the other side we may say that all will effort involves intelligence and feeling.

This is another evidence that will is no independent, isolated faculty, but becomes strong and efficient to the extent that it is supported by feeling and knowledge. These three phases of mental life, constantly present in all thought and action, constantly interacting upon one another and supporting one another, grow up in close companionship from the beginning. The whole structure of character becomes strong and efficient just to the extent that these three factors are kept in closest harmony and at the same time check and balance one another.

After this psychological analysis of the relation of will to knowledge and feeling, we are enabled to pass judgment upon the old doctrine of sheer will which has long held such an important place both in the theory and in the practice of education. We will discuss it first from the standpoint of involuntary attention; second, of habit; third, of voluntary attention. Involuntary attention, as already shown, rests upon interest. It is well known to teachers in primary grades that children have but little power of voluntary attention, but their attention is easily held by things in which they are interested. It is now felt to be a mistake to make strong and constant appeal to voluntary attention in early childhood. It is only gradually that this power of voluntary effort is developed, and to assume its existence in early school years is a blunder. It is one of the chief elements of tact in teachers to arouse and concentrate the efforts of children by all proper and legitimate interests so as to secure involuntary attention. This is the true method of developing will power. The growth of a strong habit of involuntary attention is the first and necessary step toward that concentration of thought and effort which passes over later into voluntary effort. Any child who cannot be led to a strong involuntary attention will never develop will power. Our conclusion is, that the appeal to sheer will is, for the main part, out of place in early education.

In the later years of school life all mental activity tends to become fixed in habits. In fact, the tendency toward habit-forming begins early and becomes more and more marked with the years. In the first effort to lay out a line of thought or action, the will is under heavy strain, but as the habit, by repetition, becomes more fixed, the action is almost automatic, and positive will effort is reduced to a minimum. As the mind gradually establishes its well-beaten tracks along all lines of thought and action, the burden of will effort is largely taken away. There is a great easement in mental effort. Instead of the strain of sheer will the machinery of habit comes into play and carries the burden of thought or action. This is a second very important limitation upon the doctrine of sheer will.

In the third place we will call up for review the idea of voluntary attention. In our discussion of this topic in the chapter on "Interest" we found that voluntary attention has a much more limited scope than was formerly supposed. It consists, according to Professor James, in instantaneous pulses of effort, while the steady force which maintains attention is found in interest. Even at this crucial point, at the very focus of voluntary attention, we find that interest based upon apperception, association of ideas, and the appropriate material of thought furnishes a mental machinery which shoulders the chief burden of effort.

We may go a step farther than this and say with Dr. Dewey that sheer will is out of place in education, that where there is no true interest, there is no true motive to mental effort. There is no aim or ideal set up which calls for the self-activity of the child and leads to self-realization. Dewey, pp. 24, 25, of "Interest as related to Will," says: —

"On the other hand, effort, in the sense of strain because of lack in interest, is evidence of the abnormal use of effort. The necessity of effort in this sense indicates that the end nominally held up is not recognized as a form of self-expression — that it is external to the self and hence fails in interest. The conscious stirring up of effort marks simply the unreal strain necessarily involved in any attempt to reach an end which is not part and parcel of the self's own process. The strain is always artificial; it requires external stimulation of some sort or other to keep it going, and always leads to exhaustion. Not only does effort in its true sense play no part in moral training, but it plays a distinctly immoral part. The externality of the end, as witnessed in its failure to arouse the active impulses and to persist toward its own realization, makes it impossible that any strain to attain this end should have any other than a relatively immoral motive. Only selfish fear, the dread of some external power, or else purely mechanical habit, or else the hope of some external reward, some more or less subtle form of bribery, can be really a motive in any such instance."

Summarizing, we may say that involuntary attention, habit, and interest supply three powerful criticisms against the old doctrine of sheer will in education. The mental machinery presupposed as a basis of interest and habit is an indispensable requisite for the exercise of free will, and in interest is found even the motive and first step in the process of self-realization.

A study of the will in its relations to knowledge and feeling reveals that the training and development of the will depend upon exercise and upon instruction. There are two ways of exercising will power. First, by requiring it to obey authority promptly and to control the body and the mind at the direction of another. The discipline of a school may exert a strong influence upon pupils in teaching them concentration and will power under the direction of another. Especially is this true in lower grades. Children in the first grade have but little power or habit of concentrating the attention. The will of the teacher, combined with her tact, aid in developing the energies of the will in t little ones. The primary value of quick obedien in school, of exact discipline in marching, rising, etc., is twofold. It secures the necessary orderliness, and it trains the will. Even in higher and normal schools such a perfect discipline has a great value in training to alertness and quickness of apprehension associated with action.

Secondly, by the training of the mind to freedom of action, to self-activity, to independence. As soon as children begin to develop the power of thought and action their self-activity should be encouraged. Even in the lowest grades the beginnings may be made. A significant aim may be set before them which they are to reach by their own efforts. For example, let a class in the first reader be asked to make a list of all the words in the last two lessons containing *th*, or *oi*, or some other combination. Activity rather than repose is the nature of children, and even in the kindergarten this activity is directed to the attainment of definite ends. With number work in the first grade the objects should be handled by the children, the letters made, rude drawings sketched, so as to give play to their active powers as well as to lead them on to confidence in doing, to an increase of self-activity. As children grow older, the problems set before them, the aims held out, should be more difficult. Of course they should be of true interest to the child, so that it will have an impulse and desire of its own to reach them.

There are few things so valuable as setting up definite aims before children and touching up the incentives to reach them through their own efforts. It has been often supposed that the only way to do this is to use reference books, to study up the lessons or some topics of it outside of the regular order. But self-activity is by no means limited to such outside work. A child's self-activity may be often aroused by the manner of studying a simple lesson from a text-book. When a reading or geography lesson is so studied that the pupil thoroughly sifts the piece, hunts down the thought till he is certain of its meaning; when all the previous knowledge the pupil can command is brought to bear upon this, to throw light upon it; when the dictionary and any other books familiar to the child are studied for the sake of reference and explanation, self-activity is developed. Whenever the disposition can be stimulated to look at a fact or statement from more than one standpoint, to criticise it even, to see how true it is or if there are exceptions, self-activity is cultivated.

The pursuit of definite aims always calls out the will, and their satisfactory attainment strengthens one's confidence in his ability to succeed. Every step should be toward a clearly seen aim. At least this is our ideal in working with children. They should not be led on blindly from one point to another, but try to reach definite results.

There is a gradual transition in the course of a child's schooling from training of the will under guidance to its independent exercise. Throughout the school course there must be much obedience and will effort under the guidance of one in authority. But there should be a gradual increase of self-activity and self-determination. When the pupil leaves school he should be prepared to launch out and pursue his own aims with success.

When we come to consider the field of direct moral education we find the same psychical laws at work in will development which we have already treated. The moral will bears the same relation to moral ideas, feelings, interest, etc., already described in its relation to intellect and feeling. Insight into moral ideas is an indispensable condition to moral action. Interest in and enthusiasm for moral ideals are powerful stimuli to moral conduct. The growth of moral ideas is conditioned by the same laws of induction, apperception, and interest, while involuntary attention and habit stand in the same close relation to the moral will.

Corresponding to their central importance, moral ideas may be said to possess unusual energy. The interests which they awaken are of the strongest and most permanent kind. Moral ideals, as illustrated in ordinary life, also in history and literature, are capable of acquiring complete ascendency over all other forms of psychical experience. It is the business of systematic instruction to bring these moral ideas to the attention of children, so that they can be gradually appropriated and applied to conduct. Looked at from the standpoint of self-realization, moral ideals furnish the child with the strongest motives for effort.

In one doctrine all thinkers seem to agree, namely, that true freedom consists in obedience to the moral law. To secure this there must be first a clear intellectual grasp of the moral ideas and the moral law; second, these ethical concepts and ideals must acquire impulsive energy, so as to act as strong motives. Sully says, "Thus it is feeling that ultimately supplies the stimulus or force to volition, and intellect which guides and illumines it." Practice in the exercise of the moral virtues in conduct leads on to the establishment of habit. Habit in time becomes almost automatic, so that the will is not under constant strain and stress to maintain ethical standards. The will in the end, while it controls all life and action, is itself under the guidance of those great trends of habit in thought and action, of feeling and higher impulse, which it is the highest purpose of education to cultivate and establish.

It is the freedom of the will to choose the best that we are after. We desire, so far as education can accomplish it, to limit the choice of the will to good things. We desire that the character in its full evolution toward self-realization shall become so strong, so noble and consistent in its desire that it will not be strongly tempted by evil.

Teachers who are interested in this phase of pedagogy will do well to study the science of ethics. Not that it will much aid them directly in school work, but it will at least give them a more comprehensive and definite notion of the field of morals, and perhaps indicate more clearly where the materials of moral education are to be sought and the leading ideas to be emphasized.

Herbart projected a system of ethics, based on psychology, with the intention of classifying the chief moral notions and of showing their relation to each other. He also developed a theory of the origin of moral ideas and their best means of cultivation, and then based his system of pedagogy upon it.

The chief classes of ethical ideas of Herbart are briefly explained as follows: —

1. Good-will. It is manifested in the sympathy we feel for the sorrow or joy of another person. It is illustrated by the examples of Sidney and Howard already cited.

2. Legal right. It serves to avoid strife by some agreement or established rule; *e.g.* the government of the United States fixes the law for preëmpting

land and for homestead claims, so that no two persons can claim successfully the same piece of land.

3. Justice, as expressed by reward or punishment. When a person purposely does an injury to another, all men unite in the judgment, "He must be punished." Likewise, if a kind act is done to any one, we insist upon a return of gratitude at least.

4. Perfection of will. This implies that the will is strong enough to resist all opposition. David's will to go out and meet Goliath was perfect. A boy desires to get his lesson, but indolence and the love of play are too strong for his will. There is nothing which goes so far to make up the character of the hero as strength of will which yields to no difficulties.

5. Inner freedom. This is the obedience of the will to its highest moral incentive. It is ability to set the will free from all selfish or wrong desires and to yield implicit obedience to moral ideas. This of course depends upon the cultivation of the other ideas and their proper subordination, one to another.

The five moral ideas just given indicate the lines along which the strength of moral character is shown. They are of interest to the teacher as a systematic arrangement of morals, and suggestive in teaching. They are the most abstract and general classes of moral ideas and are of no interest whatever to children.

In morals, the only thing that interests children is moral action. Whether it be in actual life or in a story or history, the child is aroused by a deed of kindness or courage. But all talk of kindness or goodness in general, disconnected from particular persons and actions, is dry and uninteresting. This gives us the key to the child's mind in morals. Not moralizing, not preaching, not lecturing, not reproof, can ever be the original source of moral ideas with the young, but the actions of people they see, and of those about whom they read or hear. Moral judgments and feelings spring up originally only in connection with human action in the concrete. If we propose, then, to adapt moral teaching to youthful minds, we must make use of concrete materials, observations of people taken from what the children have seen, stories, and biographies of historical characters. A story of a man's life is interesting because it brings out his particular motives and actions. This is the field in which instruction has its conquests to make over youthful minds.

We will gather up the fruits of our discussion in the preceding chapters. Having fixed the chief aim in the effort to influence and strengthen moral character, we find concentration upon moral ideas and practice to be the central principle in which all others unite. It is the focussing of life and school experiences in the unity of the personality. The worth and choice of studies is determined by this. Interest unites knowledge, feeling, and will. Apperception assimilates new ideas by bringing each into the bond of its kindred and friends, spinning threads of connection in every direction. The inductive process collects, classifies, and organizes knowledge, everywhere tending toward unity.

CHAPTER VIII

HERBART AND HIS DISCIPLES

"THEN, only, can a person be said to draw education under his control, when he has the wisdom to bring forth in the youthful soul a great circle or body of ideas, well knit together in its inmost parts — a body of ideas which is able to outweigh what is unfavorable in environment and to absorb and combine with itself the favorable elements of the same." — HERBART.

Herbart was an empirical psychologist, and believed that the mind grows with what it feeds upon; that is, that it develops its powers slowly by experience. We are dependent not only upon our habits, upon the established trends of mental action produced by exercise and discipline, but also upon our acquired ideas, upon the thought materials stored up and organized in the mind. These thought materials seem to possess a kind of vitality, an energy, an attractive or repulsive power. When ideas once gain real significance in the mind, they become active agents. They are not the blocks with which the mind builds. They are a part of the mind itself.

They are the conscious reaction of the mind upon external things. The conscious ego itself is a product of experience. In thus referring all mental action and growth to experience, in the narrow limits he draws for the original powers of the mind, Herbart stands opposed to the older psychologists. He has been called the father of empirical psychology.

Kant, with many other psychologists, gives greater prominence to the original powers of the mind, to the innate ideas, by means of which it receives and works over the crude materials furnished by the senses. The difference between Kant and Herbart in interpreting the process of apperception is an index of a radical difference in their pedagogical standpoints. With Kant, apperception is the assimilation of the raw materials of knowledge through the fundamental categories of thought (quality, quantity, relation, modality, etc.). Kant's categories of thought are original properties of the mind; they receive the crude materials of sense-perception and give them form and meaning. With Herbart, the ideas gained through experience are the apperceiving power in interpreting new things. Practically, the difference between Kant and Herbart is important. For Kant gives controlling influence to innate ideas in the process of acquisition. Our capacity for learning depends not so much upon the results of experience and thought stored in the mind, as upon original powers, aided and supported by experience. With Herbart, on the contrary, great stress is laid upon the acquired fund of empirical knowledge as a means of increasing one's stores, of more rapidly receiving and assimilating new ideas.

Upon this is also based psychologically the whole educational plan of Herbart and of his disciples. As fast as ideas are gained they are used as means of further acquisition. The chief care is to supply the mind of a child at any stage of his growth with materials of knowledge suited to his interests and previous stores, and to see that the new is properly assimilated by the old and organized with it. This accumulated fund of ideas, as it goes on collecting and arranging itself in the mind, is not only a favorable condition but an active agency in our future acquisition and progress. Moreover, it is the business of the teacher to guide and, to some extent, to control the inflow of new ideas and experiences into the mind of a child; to superintend the process of acquiring and of building up those bodies of thought and feeling which eventually are to influence and guide the child's voluntary action.

The critics, therefore, accuse Herbart of a sort of architectural design or even of mechanical process in education. If our ability and character depend to such an extent upon our acquirements, and if the teacher is able to control the supply of ideas to a child and to guide the process of arrangement, he can build up controlling centres of thought which may strongly influence the action of the will. In other words, he can construct a character by building the right materials into it. This seems to leave small room for spontaneous development toward self-activity and freedom.

Herbart, on the other hand, criticises Kant's idea of the transcendental freedom of the will, on the ground that, if true, it makes deliberate, systematic education impossible. If the will remains absolutely free in spite of acquired knowledge, in spite of strongly developed tendencies of thought and feeling; if the child or youth, at any moment, even in later years, is able to retire into his transcendental ego and arrive at decisions without regard to the effect of previously acquired ideas and habits, any well-planned, intentional effort at education is empty and without effect.

John Friedrich Herbart, the founder of this movement in education, was born at Oldenburg, in 1776, and died at Göttingen, in 1841. He labored seven years at Göttingen at the beginning of his career as professor, and a similar period at its close. But the longest period of his university teaching was at Königsberg, where, for twenty-five years, he occupied the chair of philosophy made famous before him by Kant. His writings and lectures were devoted chiefly to philosophy, psychology, and pedagogy. Previous to beginning his career as professor at the university, he had spent three years as private tutor to three boys in a Swiss family of patrician rank. In the letters and reports made to the father of these boys, we have strong proof of the practical wisdom and earnestness with which he met his duties as a teacher. The deep pedagogical interest thus developed in him remained throughout his life a quickening influence. One of his earliest courses of lectures at the university resulted in the publication, in 1806, of his "Allgemeine Pädagogik," his leading work on education, and to-day one of the classics of German educational literature. His vigorous philosophical thinking in psychology and ethics gave him the firm basis for his pedagogical system. At Königsberg, so strong was his interest in educational problems that he established a training-school for boys, where teachers, chosen by him and under his direction, could make practical application of his decided views on education. Though small, this school continued to furnish proof of the correctness of his educational ideas till he left Königsberg, in 1833. This, we believe, was the first practice-school of its kind established in connection with pedagogical lectures in any German university. It should be remembered that, while Herbart was a philosopher of the first rank, even among the eminent thinkers of Germany and of the world, he attested his profound interest in education, not only by systematic lectures and extensive writings on education, but by maintaining for nearly a quarter of a century a practice-school at the university, for the purpose of testing and illustrating his educational convictions. Lectures on pedagogy are more or less commonplace, and often nearly worthless. The lecturer on pedagogy who shuns the life of the schoolroom is not half a man in his profession. The example thus set by Herbart of bringing the maturest fruit of philosophical study into the schoolroom, and testing it day by day and month by month upon children, has been followed by several eminent disciples of Herbart at important universities.

Karl Volkmar Stoy (1815–1885) in 1843 began his career of more than forty years as professor of pedagogy and leader of a teacher's seminary and practice-school at Jena. (A part of this time was spent at Heidelberg.) During these years more than six hundred university students received a spirited introduction to the theory and practice of education under Stoy's guidance and inspiration. His seminary for discussion and his practice-school became famous throughout Germany, and sent out many men who gained eminence in educational labors.

Tuiskon Ziller, in 1862, set up at Leipsic, in connection with his lectures on teaching, a pedagogical seminary and practice-school, which, for twenty years, continued to develop and extend the application of Herbart's ideas. Ziller and several of his disciples have attained much prominence as educational writers and leaders.

A year after the death of Stoy, 1886, Dr. Wilhelm

Rein was called to the chair of pedagogy at Jena. He had studied both with Stoy and Ziller, and had added to this extensive experience as a teacher and as principal of a normal school. His lectures on pedagogy, both theoretical and practical, in connection with his seminary for discussion and his practice-school for application of theory, furnish an admirable introduction to the most progressive educational ideas of Germany.

The Herbart school stands for certain progressive ideas which, while not exactly new, have, however, received such a new infusion of life-giving blood that the vague formulæ of theorists have been changed into the definite, mandatory requirements and suggestions of real teachers. The fact that a pedagogical truth has been vaguely or even clearly stated a dozen times by prominent writers, is no reason for supposing that it has ever had any vital influence upon educators. The history of education shows conclusively that important educational ideas can be written about and talked about for centuries without finding their way to any great extent into the schoolrooms. What we now need in education is definite and well-grounded theories and plans, backed up by honest and practical execution.

The Herbartians have patiently submitted themselves to thoroughgoing tests in both theory and practice. After years of experiment and discussion, they have come forward with certain propositions of reform which are designed to infuse new life and meaning into educational labors.

The first proposition is to make the foundation of education immovable by resting it upon growth in moral character, as the purpose which serious teachers must put first. The selection of studies and the organization of the school course follow this guiding principle.

The second is permanent, many-sided interest. The life-giving power which springs from the awakening of the best interests in the two great realms of real knowledge should be felt by every teacher. Though not entirely new, this idea is better than new, because its deeper meaning is clearly brought out, and it is rationally provided for by the selection of interesting materials and by marking out an appropriate method of treatment. All knowledge must be infused with feelings of interest, if it is to reach the heart and work its influence upon character by giving impulse to the will.

Thirdly, the idea of organized unity, or concentration, in the mental stores gathered by children, in all their knowledge and experience, is a thought of such vital meaning in the effort to establish unity of character, that, when a teacher once realizes its import, his effort is toned up to great undertakings.

Fourthly, the culture epochs give a suggestive bird's-eye view of the historical meaning of education, and of the rich materials of history and literature for supplying suitable mental food to children. They help to realize the ideas of interest, concentration, and apperception. See Appendix.

Apperception is the practical key to the most important problems of education, because it compels us to keep a sympathetic eye upon the child in his moods, mental states, and changing phases of growth; to build hourly upon the only foundation he has, his previous acquirements and habits.

Finally, the Herbartians have grappled seriously with that great and comprehensive problem, the common school course. The obligation rests upon them to select the materials and to lay out a course of study which embodies all their leading principles in a form suited to children and to our school conditions.

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